

AMIGA USER

INTERNATIONAL

Incorporating Commodore Business Magazine

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8861 JULY 1988

AMIGA
THE SCENE
STEALING
MACHINE!

PROFESSIONAL
PAGE DTP
VIRUS BANDITS
STRIKE BACK
AMIGA
PROGRAMMING

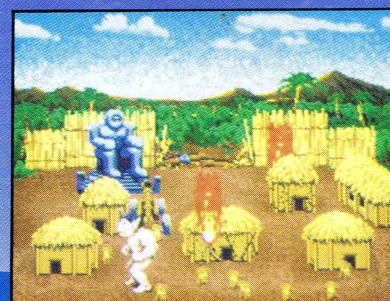


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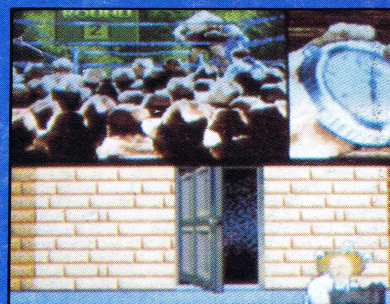


**INTERCEPTOR
TAKES OFF!**

AAARGH!



**THE THREE
STOOGES**

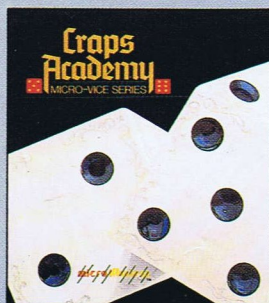


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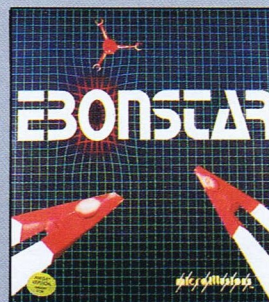


Join the road war and race through the cities, countrysides and treacherous mountains. Face the challenge to survive and use your driving skills while you battle your rivals to be the first to cross the finishing line. Turbo offers single, double and modem playability. **Amiga - £19.99.**



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microvision

ACTIVISION



THE AMIGA DIMENSION

STEALING THE SCENE

600,000 ... That is the number of Amigas Commodore tells us it has sold around the world - a figure fitting nicely with AUI's byline of "The Taste of Success". The Amiga is truly beginning to steal the world micro scene.

The pace of the Amiga advance is accelerating, especially in Europe. In Germany, CBM's powerhouse country, the Amiga is moving toward becoming the largest selling micro, robbing the best selling 64 of the limelight. The same is happening on the rest of the continent. In the U.K., the estimate is to double the present 45,000 A500's in the next 12 months with lower prices and a drive for greater public awareness.

We foresee dramatic announcements, too, on the 2000 front, not so much in reductions of price but in additions of power and sophisti-

cated applications for specialist users.

The Amiga shadow is falling threateningly over its main 68000 competitor, the Atari ST, which is being relegated to the "Spectrum" of the 16 bits.

Professional Page, reviewed this month, could well take on the other main 68000 machine, the Macintosh, at its own DTP game and thrust the Amiga forcefully into this important area. EA's Interceptor, also reviewed, may well prove a mark in Amiga history.

To the general press, who have often been dismissive of the Amiga, and to those who think everything should happen yesterday, the Amiga progress may seem somewhat laboured and slow. But it is just two years since the Amiga was launched at the Commodore Show in London and in that time there

has been a price fall from £1,760 to £399.00. The quality of programs like Professional Page and Interceptor represent progress which could well be described as amazing. With a prediction that by the year's end there will be worldwide, a million Amigas, the Amiga is standing clear of the crowd, stealing the global micro scene. When success happens, it always looks as if it had been inevitable, doesn't it? Especially with the Amiga's now obvious star quality ... we knew that the Amiga was something special, didn't we. We knew all along that the Amiga would come good, didn't we? Didn't we?

Antony Jacobson
Managing Editor & Publisher

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COMMODORE AMIGA USER INTERNATIONAL

Managing Editor and Publisher	Chris Holmes
Editor	Antony Jacobson
Features Editor	Harry Broomhall
Staff Writer	Ian Bennett
Consultant Art Editor	Giulio Zicchi
Artwork	John Walker
Production Manager	Justin Jackson
Production Controller	Les Cooke
Senior Advertisement Manager	Paul Andreas Overaa
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Cover Illustration	Zack Skinner
Contributors	
Alastair Statham	
Al Meric	
Andy Eskelson	
Andy Moss	
Bill Donald	
Bob Chappell	
Bud Vennos	
Telephone	01-278 0333
Editorial ext:	274
Advertising ext:	280/286
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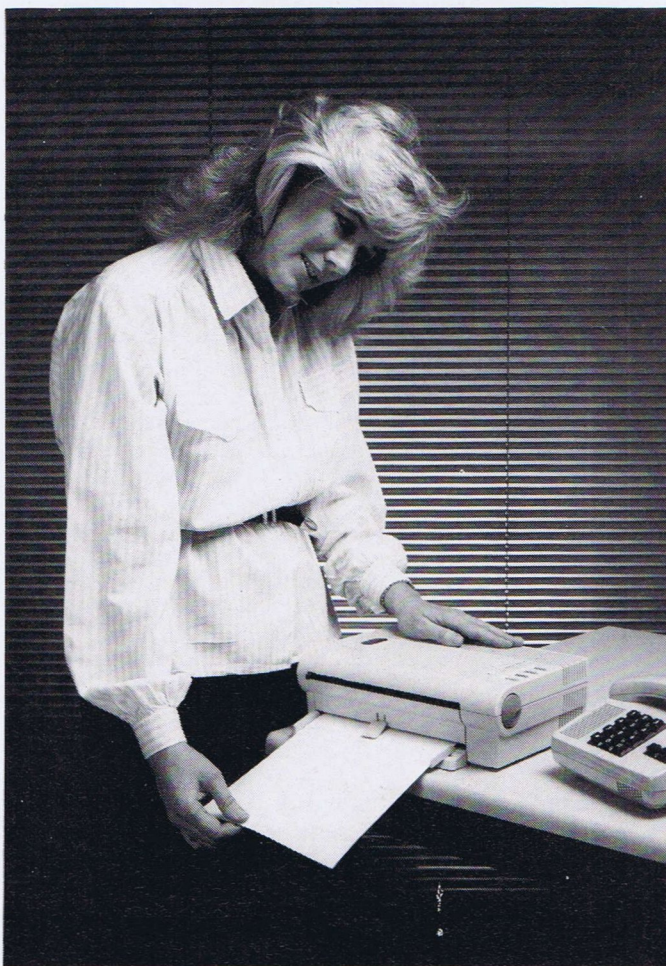
All the Fax

Siemen's new 2301 fax machine, which has a footprint no larger than an A4 page, is now available from Action Computer Supplies. It can be plugged into any standard telephone socket and has only four controls, making it easy to use. The unit is compatible with CCITT group 2 and 3 equipment and provides a transmission time of 30 seconds per A4 page in group 3 mode.

Features include local copy function, 16 grey shades for transmission and reception of photographs and drawings, automatic contrast control and polling facility with a two digit password. There is a 30m paper roll and an alarm to warn you when the paper is running low. The price includes delivery, installation, training and a second year's free warranty.

PRICE: £1,339.00 or £7.50 per week lease rental.

CONTACT: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx, HA0 1WL. Tel: 0800 333 333 Telex: 922493 Action G.



Laser Training

Ariadne Software Ltd have added two new products to their AAAE range of authoring tools for CBT (Computer Based Training) and IAV (Interactive Audio Visual) applications. AAAE Microtext is an independent software package which can control any laser disk player, or video tape player, with a serial port. Philips and Sony laser players are supported as standard. AAAE Microtext is a new implementation of the Microtext level three authoring language and runs on the Amiga within a unique environment, AAAE (the Ariadne Amiga Application Environment). Version 0.9 of AAAE Microtext was released in December 1987 and has been successfully tested and used at a number of sights, including British Aerospace Warton, whose operational experience has been incorporated into the current version (1.0).

PRICES: AAAE Microtext: £500 + VAT

AAAE Video Player Device: £350 + VAT.

CONTACT: Ariadne Software Ltd., 273 Kensal Road, London W10 5DB. Tel: 01-960 0203.

What a waste!

A new name in entertainment software, Exocet Software, will shortly be releasing their first Amiga offering, Foundation's waste. In the game you play a space pilot who has been captured by The Federation. On your seventh escape attempt you manage to reach the Records Office, where you find the Federation's dossier on you. You discover that their plans for you do not seem too healthy and decide that your only chance of escape lies in 'borrowing' a Federation spacecraft. Unfortunately, no sooner have you done this but you are discovered and all Federation land and air personnel is put on alert. They chase you through various levels and whether or not you escape depends on your skill in playing the game.

PRICE: £24.95.

Corruption

Corruption is an adventure game from Magnetic scrolls. It is set in the world of high finance amongst all the double dealing and commercial intrigue. You are fighting a double battle as you endeavour to prove your innocence of the charges laid against you and stay out of jail. You have, of course, been framed by your

partner. Your other worry is the irate drugs Baron who is itching to kit you out with a pair of concrete boots.

Rainbird, who distribute the game, tell us that the puzzles are complex and revolve around the manipulation of other characters and extracting information, rather than picking up and finding clever uses for a series of objects. PRICE: £24.95.

Thumbing a lift to data protection

Thumbscan Inc., a USA company have developed a new idea in personnel computer security. The package comprises a scanner unit and some software. A password has to be entered correctly before the software asks you to place your thumb in the scanner unit. This image is

then scanned and digitised to be compared with an image stored in the computer together with your password. If both check out then you are granted access to the computer.

Thumbscan also make the Gordian Access key which is held to the screen in a certain position and information passed to it from the computer. This information is combined with that already in the electronic key and a password is displayed on the key when it is

Micro Management

According to this year's Price Waterhouse IT review at least one in three top level managers have a PC on their desk. This is a big increase over previous figures, although the situation is not as clear cut as it may seem. Apparently very few of these managers actually use them. It would seem that every self-respecting executive should have his or her own computer, even if he (or she) does not know how to use it.

removed from the screen. You enter this password to gain access to the computer. If the key is not a 'legal' one, for example out of date etc, then it will display an incorrect password which will not allow you access.

CONTACT: Thumbscan Inc., 2 Mid-America Plaza, Oakbrook Terrace 111, 60181.

FABBS/AUI Quickmail Service

Fareham UK BBS now has a 24 hour Quickmail service for Amiga User International readers. The service is a backdoor into the Fareham BBS which will let you into a special AUI area so you may leave any messages for AUI on the system. There is no need to be a registered user of the Fareham Amazing Bulletin Board System (FABBS) to use this service, simply log on using the name Amiga User and when requested for your

password use the word International. There are only two options in Quickmail, (1) Leave a message for AUI and (2) Logoff the system.

If you want to use the BBS (which is an Amiga specific networked BBS) then you must register as a user under your own name and apply for membership via the on-line questionnaire. The FABBS has an international Amiga message base and an international C programmers base, in addition to its PD software section, offering all the latest PD for download.

The FABBS telephone number is (0329) 45824.

International Teletext

The Hampshire based company, Microtext have produced an International version of its Teletext adaptor for the Amiga (reviewed in June's edition of AUI).

Teletext was invented in Britain but it is now in use in many countries all over the world. An international version of the product was required because various countries use different television frequencies and standards, none of which are compatible with that used in the UK. The new versions of the Microtext system handles these and will provide access to Teletext plus Television pictures and sound on a monitor, in any country which uses the PAL

system, including Australia, Belgium, Denmark, Finland, West Germany, Eire, Italy, The Netherlands, New Zealand, Norway and Sweden.

The International version retains all the features of its UK counterpart. The Teletext adaptor is packaged in a free standing case coloured to match the Amiga. Connection to the computer is made via a flexible lead which connects to the parallel printer port. A socket is provided on the rear panel for the reconnection of the user's printer. Two other connections go to the power supply and a normal T.V. aerial.

Price: £169.50

Contact: Microtext, 7 Birdlip Close, Horndean, Hampshire. Tel: (0705) 595694.

Flying Laptops

The UK Government have decided to eliminate the need for temporary export licences for travellers taking their laptop computers abroad. With the recent increase in the use of such machines by business travellers long delays have been incurred at airports as special, last minute Customs clearance has been sought. Part of the problem has been that people have been totally unaware of the need for the temporary licence. The new position is that no licence will be needed for most PCs with up to 4Mb of memory being taken to a 'friendly' country.

Any amount of machines may be taken on the journey as long as they are for the sole use of the person who is taking them abroad.

64 to AMIGA/PC

PC and Amiga owners who have recently upgraded from the Commodore 64 can still make use of their old computer thanks to 2 new Print Links from Trilogic.

Both the new Trilogic products link the Commodore 64 to a PC or Amiga so that the Commodore can be used as a

64k printer buffer.

The new Print Links are particularly good news for those who still have not upgraded their old Commodore serial printer. The Print Links connect the 2 computers via their parallel inputs so that the Commodore serial output is still available to run the Commodore printer. As a consequence a program on the PC or Amiga can be printed out on the Commodore printer.

The first Print Link retails for £34.99, £10 cheaper than the more advanced Print Link 1B which has an extra interface so that most parallel printers are also compatible with the system. Thus both a serial printer and a parallel printer can be connected simultaneously.

CONTACT: Trilogic, Unit 1, 253 New Works Road, Bradford, BD12 0QP. Tel: (0274) 691115.

US Bonanza?

The Department of Trade and Industry's Overseas Trade Board have issued a booklet which urges UK software companies to consider selling to the USA. The Board feel that the potential for UK exports in this field is enormous. In particular the report refers to software for personal computers and minis. The Department of Trade is anxious, though, to stress that only serious companies, willing to make a long term commitment, producing high quality software will be successful. The US software market is currently worth \$20.2 billion and increasing rapidly.



THE AMIGA CENTRE

77/79 Rochester Row. London SW1

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Selected items:

Gold	— Professional Page v.1.1	£249.00
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	— Videoscape 3D	£109.00
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NewTech	— Digiview v.2 (Pal)	£149.00
Comspec	— 2MB Memory Expansion (A2000)	£529.00
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Telebox 3

Telebox 3 is a complete telex management system from Data and Control Equipment Ltd., in a single box. It can be connected to any computer, word processor or electronic typewriter with an RS232 port and will use your existing word processing software to send messages world wide. The unit's own on-board software carries out all telex functions automatically, so you have no complicated routines to learn.

When a message is received the unit will either print it out or store it in its own memory as required. Because Telebox 3 is a stand alone unit, you can switch off your computer overnight and at weekends, while the unit continues to send and receive messages.

Many features are included such as a message capacity of at least 50,000 characters, an integral battery backup, automatic re-dialling, priority messages, multi-addressing, real time clock, privacy of outgoing calls and batching.

The whole box measures must 320 x 275 x 75mm and is British Telecom approved.

Another clever box from Data and Control Equipment is the Faxbox. It enables computer and word processor users to



initiate facsimile transmissions direct from their desks. This must be preferable to having to travel to a central fax machine, perhaps in another office. According to DCE, nearly three quarters of all fax originals are generated on such systems so faxbox can speed up transmission by eliminating the need for a hard copy stage. Again, this unit is

suitable for use with any computer or word processor with an RS232 port. The unit even caters for several companies or divisions using the same fax machine, adding pre-programmed graphics such as logos and letterheads as instructed by the operator. Faxbox will store up to 300 pages in its memory for later transmission. Urgent messages can be given priority in the queue and the unit offers full transmission verification and

call logging. Transmission quality, says DCE, is very high, as no scanning is involved. Faxbox transmit automatically at the maximum speed of the receiving machine, minimizing call times.

Contact: Data and Control Equipment Ltd., Kingfisher House, Walton Street, Aylesbury, Bucks HP21 7QG. Tel: 0296 432971.

Coded Protection

Linel have developed a new copy-protection that may be used on any Amiga model. It uses a track on the disk with a special coded format. Any sort of program may be protected, loading either from the Boot

block or the Amiga DOS. Linel claim that their program will make a disk absolutely uncopyable with the usual copy programs, including Marauder, Marauder II, The Mirror, Quick Nibble and White Lighting. They also claim to protect against copying by the newer programs such as A-Copy, Fast Lightning, SCA-Copy, Project D, Amiga-Copy 1.2

etc.

The Linel Copy-protection does not use forbidden tracks, thus making sure it does not harm the hardware. Neither does it use special disks or dongles. One added bonus according to Linel, is that a disk protected by their program will also be SCA-Virus immune.

best regarded as a "literary work". This means that, no matter which storage medium is used (Disk, Cartridge, Tape, paper etc.), the software will be covered by copyright law in the same way as any other literary piece. Tory M.P. Emma Nicholson, herself a former programmer, warned that difficulties could easily arise if a special case were made of computer programs, with members of the legal profession not being technically qualified to understand the particular problems inherent in this field. She told the House that the British Computer Society, of which she is a member, held the view that software was "best left in the curious position of a subset of literary works".

Enhanced Pascal

Metacomco have released version two of their Pascal for the Amiga. The original Pascal compiler was a fast, single-pass compiler which had been validated by the British Standards Institution as conforming to ISO standard 7185 (level 0). It has now been extensively rewritten to include many optional extensions to the ISO Pascal standard. These include: Separate compilation; Random access; Dynamic strings; Single and double floating point; routines; Full 32 bit pointers; Bitwise integer operations; OTHERWISE in CASE statement; Binary, Decimal, Octal and Hexadecimal integer and character constants; Enhanced I/O.

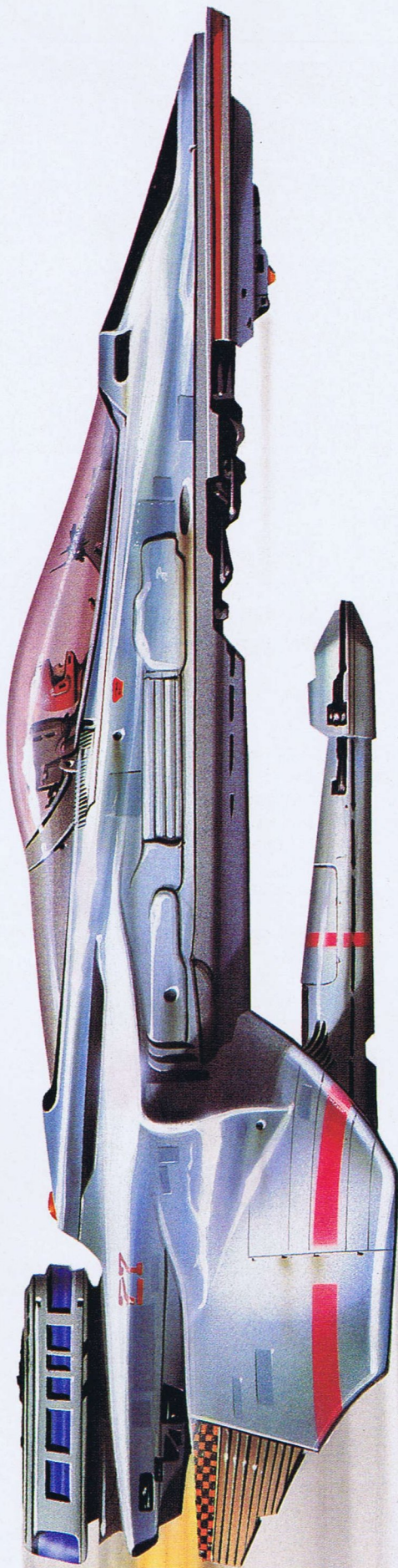
PRICE: £89.95 or Registered users' upgrade: £38.50. CONTACT: Metacomco PLC, 26 Portland Square, Bristol BS2 8RZ. Tel: 0272 428781.

Software – What is it?

Recent discussions in the U.K.'s House of Commons have failed to come up with a legal definition of the phrase "computer software". It was suggested by junior industry minister, John Butcher that a computer program would be

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Does the prospect of real-time digitising grab you? Peter Lee focuses on some exciting new hardware from SunRize Industries.

The growing appeal of Video digitisers for home enthusiasts must have as much to do with their fun factor as their more serious applications. They may make your desktop publishing output look like it is hot off the Fleet Street presses by providing life-like illustrations but they also contain scope for plenty of enjoyment in 'just for the fun of it' artwork or animation.

If a picture is worth a thousand words, imagine the impact of actually displaying a photographic illustration on the computer monitor, enhancing it, or slotting it into your latest newsletter before printing out...

Digitisers allow you to capture into memory images from a video camera, video cassette recorders (VCRs) or even from off-air broadcasts. From then on, it is up to you what you do with them. They behave just like screens saved from art programs and can be drawn on or displayed in exactly the same manner.

Claiming to be 'state-of-the-art', the SunRize Vision digitiser comes as an Amiga-coloured unit the size and thickness of a hardback novel. At the rear there is an output socket which connects

to make three separate monochrome scans of your original, holding one of the red, green and blue filters in front of the lens in turn. The colour picture is then built up by combining these three frames in either 32 colour or HAM mode. Low-tech - but workable...

As yet only black and white images,

'It is blindingly fast. Interlace pictures take all of 1/30th of a second!'

using 16 grey scales, can be captured from a video recorder but work is under-way to provide an RGB splitter which will allow full-colour grabs from suitable sources; something which will really be exciting.

Amazingly, it takes only 1/60th of a second for Perfect Vision to scan a frame. This does not mean you can watch the Olympics in digitised realtime, because only two frames can be grabbed

Regrettably, the immediate release version uses the NTSC display, cropping around 4 cm at the bottom of the screen. This used to be a common fault of most US software in the early days but really there is no excuse for not providing



European users with PAL versions today. This means at the present that you will lose the lower portion of any image and because there is no image centering control available through software, it is a problem you are stuck with until any PAL screen upgrades.

The software contains several major features, the most potent being the multiple-frame grab. You can digitise sequences of frames (at two per second) into memory, specifying the number up to

PERFECT

via a standard cable (not supplied) to the Amiga printer port, a 9-pin socket for the planned colour splitter to enable RGB signals to be digitised separately, a standard phono-type socket for the incoming video signal and, on the front, two knobs which control contrast and brightness.

The digitiser contains its own 64K of onboard RAM and works from a 12 volts transformer, which thankfully is supplied. It probably goes without saying that you have to provide your own camera. Completing the package are a set of 3 colour filters, a disk containing the digitising software and a flimsy manual which could be better. The filters are there to allow you to digitise colour pictures with a video camera (b/w or colour); All scans are displayed in black and white, so in order to enjoy colourful screens you have

per second. But it is blindingly fast. Interlace pictures take all of 1/30th of a second!

memory limits. Using an A1000 with 2.5 meg I was happily capturing upwards of 50 frames at a time. It is then easy to save either individual screens from the batch, or specified sequences with file-names being automatically generated and saved to disk.



You can flick through a sequence in memory, not in realtime but very quickly, using rewind or forward buttons, or simply by specifying a frame number. (A minor complaint here – there is no number showing which frame is on screen, so you have to memorise the numbers you are interested in, counting up from the starting frame). It therefore becomes very easy to store sequences of images and then use an animation package to play them back. Unfortunately SunRize do not supply a realtime projector utility,

'The digitiser works so fast it can even manage to capture a still while the VCR is fast searching!'

which is an irritating shortcoming considering that sequential digitising is the product's main attribute. But I found the excellent Director package (which we

perfect 16 tone grabs were obtained and the digitiser works so fast it can even manage to capture a still while the VCR is fast searching!

I found it necessary to have the VCR hooked up to a TV as well as the digitiser to make it easier to see exactly which scene was playing; the normal Perfect Vision display can fill the screen with the latest grab, or you can make the images a quarter size. However when you move to the multiple frame grab the display is not updated so you tend to lose track of what is being shown – hence the need for a TV screen showing the VCR output.

Colour work tends to be less predictable than simple, crisp black and white but if you need it, Perfect Vision provides adequate results. Getting the brightness and contrast right is critical here otherwise your screen looks like it has been photographed through splodges of mud!

each individual colour. Setting the brightness and contrast controls on the digitiser's front panel is a mixed blessing. It takes quite a while and the gentlest of adjustments to initially configure the image.



The program itself contains a small set of enhancement features. These allow you to perform an edge detection scan on the displayed image, giving contour-map type results. There is an edge sharpener and an option to blur a picture by averaging out the tone values of adjacent pixels and the ability to convert the frame to black and white. Any serious manipulation of IFF-saved files, though, will need work from the likes of Pixmate or Butcher II.

Files may also be saved in the RAW format which among other things allows them to be re-loaded more easily from BASIC and a colour frame can be saved as it stands, or as a series of buffer dumps which can be loaded back into the program for further manipulation. Loading a previously-saved IFF-standard colour frame simply displays the screen but does not allow any work on it whatsoever. Useful for locking in that particular palette though.

CONCLUSION

You just have to examine the competition to realise what good value Perfect Vision is. Under £200 for a real-time digitiser is pretty aggressive pricing and the quality it offers is as good as I have seen anywhere. Sticking colour filters in front of a video camera is pretty primitive – but it works, with the rider that results are hit-and-miss and can take a while to get right. But where Perfect Vision does show its class is in sequential frame grabs. Anyone with an interest in animation should be thrilled at the prospect of 50 or so frames to flip through – provided they have the right third-party software to utilise this feature. Not coming with a lead is a let-down, as a printer cable can cost around £18 but the external power supply is included, which is good policy. Once the RGB splitter arrives this product will be unbeatable and even as it is now, it's a real attention grabber!

P.L.

Price: £199.95

Contact: Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3RN. Tel: (031) 557 4242.

VISION



reviewed in an earlier issue) came into its own for flicking instantly through 20 or so sequential images.

When capturing files for animation I found it best to make two passes of the scene and then cut in frames which perhaps were not in the first batch, enabling smoother motion. Sequential frame grabs only work in black and white because of the three filter restriction on digitising colour scenes but they are a marvellous attribute. Even using videotape recorded at half speed near-

Grabbing the 3 colour separations is very friendly and fast, allowing you either instant capture, or six seconds before the scan so you can fumble with the filters.

Once each of the colour components are captured in the buffer you may display the image in either 32 colour mode or HAM and then have the option of creating a pseudo-overscan screen – which until there is a PAL display version available is really of little interest.

Red, green and blue colour values for a particular frame can be edited from a control sub-menu, allowing fine-tuning of the overall look and there are software adjusters for brightness and contrast. A further option allows full control over

DOS-2-DOS

PC to Amiga -3.5 to 5.25 - It's all possible with Dos-2-Dos. Alastair Statham does a little data manipulation.

The famous Transformer package for the Amiga gives a degree of IBM/PC compatibility for A500 and A1000 users but has a drawback. It runs very slowly and only supports a monochrome display. Although there are several PC packages which can run under Transformer, it would seem to make far more sense to run Amiga packages on an Amiga and PC packages on a PC. How, then, to process data from a PC? Well, you could always connect the PC to your Amiga and transmit the data using an RS232 link but that could prove a little inconvenient with your Amiga at home and the PC miles away at the office. Central Coast Software offer another, more practical, solution called DOS-2-DOS.

DOS-2-DOS is a utility to transfer files between AmigaDOS disks and disks formatted to the MS-DOS or PC-DOS standard including ATARI ST GEM format. It can transfer files to or from 5.25-inch or 3.5-inch disks and handles both ASCII and binary format files. Usually there is no translation performed on the data but there are options to replace ASCII line-end characters to suit the receiving format. MS-DOS program files may be copied despite the fact that they will not run on the 6800 based Amiga. The minimum configuration required to run the utility is an Amiga with at least 256k of memory and two disk drives. Versions 1.1 and 1.2 of AmigaDOS will both execute DOS-2-DOS which modifies the function of some AmigaDOS commands. Unlike Transformer it is very easy to flip from using DOS-2-DOS to normal Amiga use and the modified CLI commands still retain their original function. It is recommended that other work is not run while the utility is in use because it takes control of the Amiga disk controller hardware to process the MS-DOS format disk.

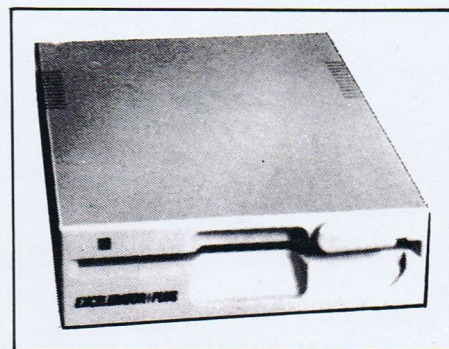
It is very easy to start DOS-2-DOS. From the CLI you simply issue the command D2D. A greeting is displayed, followed by a prompt request to know which drive is to be used to hold the MS-DOS format disk. You may specify only one MS-DOS drive. The DOS-2-

DOS disk may now be removed and any disk inserted into the specified drive is assumed to be in PC format although the drive is still referred to as DF_n: rather than A: or B: as on a real PC. As there is only one such drive you may not copy files directly from one MS-DOS disk to another. Only forty track disks with 512k sector sizes are supported which means that the quad density eighty track 5.25-inch disks used in PC/ATs cannot be used. Disks which have been copy protected by using non-standard sector sizes or tracks beyond track number forty will also cause DOS-2-DOS problems.

"The DIR command can process the directories of both Amiga and PC format directories and supports their respective path specifications."

The repertoire of commands within D2D includes COPY, FORMAT, TYPE and DELETE. The directory commands DIR and CHDIR are also provided together with an online help facility and an EXIT command to return to the normal AmigaDOS commands. As D2D has turned off the driver for the MS-DOS format drive it will not be available until workbench is restarted by warm-starting the Amiga but can be quite happily left in this state if not needed. HELP displays a list of the command formats and functions to enable the user to work without continued reference to the small but complete manual. The DIR command can process the directories of both Amiga and PC format directories and supports their respective path specifications. AmigaDOS uses the normal slash while MS-DOS paths are specified using a backslash. Although it displays free space on the disk and can handle subdirectories it can only display all files in a directory and not individual or selected groups of files. The CHDIR or CD com-

mand sets the current directory and, as with the DIR command, supports both system formats and path definition types. If a CD has not been issued the default directories are the root directory for the MS-DOS disk and the current directory when D2D was invoked for the AmigaDOS system. Although D2D can handle all existing directories and subdirectories it contains no commands to allow the creation of new ones. It can, however, be used to format a new MS-DOS disk. Two of the standard PC format parameters are catered for. The /1 parameter formats the disk for single-sided use only and the /8 parameter specifies that there should be eight sectors per track instead of the standard nine.



By far the most powerful of the D2D commands is the copy command. It can be used to copy from MS-DOS disks to AmigaDOS disks and vice-versa. The first file specification determines the direction of transfer. If the first file specification starts with the drive number that has been defined as an MS-DOS drive then transfer is assumed to be from MS-DOS to AmigaDOS. If no drive is specified or the first drive number is not the MS-DOS drive then transfer will be from AmigaDOS to MS-DOS. Destination file-names are not needed if you want the new file to have the same name as the old one. MS-DOS filenames must follow the MS-DOS naming convention and when a new file name does not match the standards a prompt is given for one that does. Although the general pattern matching of AmigaDOS is not fully sup-

continued on page 55

MICRO-FILE

JUMPDISK

JUMPDISK For the AMIGA

For the AMIGA MONTHLY MAGAZINE ON A DISK

JUN '88
Vol. 3, Issue 6, No. 23

PROGRAMS

CHES1.0
It Can Beat You! Can You Beat It For \$500 in Prizes?

BASICBRUSH
Make a Brush a Bob

MIDDLE EAST
Graphic Geography

VIRUSX1.21
New Version Virus Checker

SCREENX
Utility of Many Uses

IFF2:
Store Art in 'C' Code
BTSPS CLOCK
A Useable Assembly Lesson

FACE1
Rotate Basic Images

TWIRL
Title Screen Idea

SPEECH
C-Notes Demo

PERSPECTIVES
Delightful Confusion

MORRA
The Finger Game

UTILITIES

SPEAKALL
Hear or Record Articles In Issue

PRINTALL
Print Articles To Paper

READ40
Large Text Article Display

ARTICLES

WORKBENCH 1.3
It's New and It's Surprising

DEVELOPER'S CONFERENCE
What Happened In Washington

CHES
Docs and a \$500 Contest

VIRUSX1.21
It Beats the Byte Bandit

BASICBRUSH
Change a Basic Brush to a Bob

SCREENX
Documentation for a Fine Do-Lots Utility

AMIGADOS PRIMER
Part 2 of List

THE WCCF SHOW
A Fair Amiga Angle

COMMAND POST
BTSPClock In Assembly

PERSPECTIVES
Tricking the Logical Eye

FACE1
How to Rotate A Basic Drawing

TWIRL
Artful Screen Tinting Utility

PD DISKS
And Here's How

READ40
Text Files In the Big Type

C-NOTES
It Can Talk!

C-NOTES
Speech Source Code

IFF2
'C' Utility to Save IFF Art

READERS' FORUM
Concerning Viruses

SQUITTERS RESULTS

EDITOR'S THREE CENTS
Doing D.C.

SUBMIT TO US!
We pay for Amiga Material

Instructions
inside cover.



JUMPDISK published monthly at
1493 Mt. View Ave.
Chico, Calif. 95926
Phone: (916) 343-7658

JUMPDISK

\$500 Chess Contest

I'm a chess program.
I am on this disk.

With all deference
to your humanity,
I think I can beat
the living daylights
out of you.

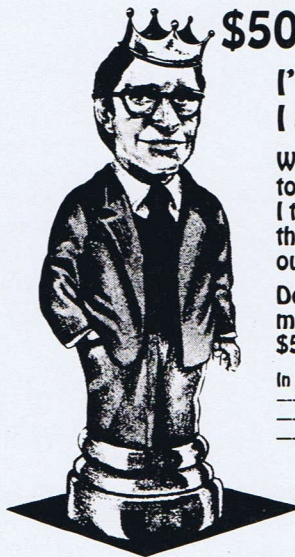
Defeat me and you
may win a share of
\$500 in cash prizes.

In this issue:

- 12 Programs
- WB 1.3 Examined
- Amiga Developers Conference Report

£8.50 inc.

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We attended the recent Amiga Developers Conference in the U.S.A. and are one of the first magazines to report on 'what's in store' for Amiga owners. Did you know that subscribing to JUMPDISK for six months costs only £45.00? A saving of £6.00. Your copy will be sent on the date of publication and with effect from June 1st you will benefit from numerous special hardware and software offers.

PUBLIC DOMAIN - LATEST NEWS

We have just received the latest batch of F.A.U.G. disks from the U.S.A. Here is a selection. The full picture is on the JUMPDISK P.D. LIBRARY DISK price £3.00 inc.

FAUG 38: Shanghai - single game demo of well known Activision game. Slideshow - Cars, credit cards and food.

FAUG 45: Larn - Famous Unix role-playing game from Software Distillery. LMV - Takes any set of IFF pictures and flips through them at 15 frames per second.

BardEdit - Bard's Tale character editor.

SF-Demo - Clever demo with Rock music.

FAUG 50: Rollback - Brings back information that has scrolled off the screen on a CLI session. Useful with Conman.

Shortcut - Adds menus to the CLI window and builds Macro sets.

DirUtil - V1.0 of this marvellous utility that enables the CLI operations to be run from menus.

Slideshow - Acrylic on Canvas.

FAUG 51: Jobs - Used instead of the W/B or CLI window as more effective system/user interface.

MandelVroom - Lets you generate Mandelbrot pics and recolour them.

Journal - Records mouse movements for future playback.

XList - Experimental Object Orientated Language.

FAUG 54: Zeus - The rotating statue of Zeus, the finest demos made. A must for any collection.

Zoo - creates and maintains collections of files in compressed form.

Fiz - Recovers data from damaged Zoo archives.

FAUG 54: Zeus - The rotating statue of Zeus, requires 1Meg. A demo very well done.

FAUG 55: Slideshow - More Acrylic paintings.

PlayRiff - Displays the realtime recording capabilities of LIVE! Runs on 512K 'kind-of' but really needs 2Meg.

FAUG 57: Gazer - (Amigazer) View the night sky of over 1500 stars at any time, date, latitude and direction. Brilliant for star gazers.

Access - One of the best 16 colour Terminal programs around.

TicTacToe - 3D version of famous game.

Sclock - Digital titlebar clock with secs and am/pm.

Conman - Replacement console handler with line editing and CLI histories.

Slideshow - More excellent pics from Bryan Gallivan.

FAUG 61a/b: (Counts as two disks).

Double disk set of NewTek demo featuring digi pics and sound. Needs 1Meg.

FAUG 65: BattleMech - Game that simulates combat between two or more robot-like machines. A detailed and well presented game.

Click - Installs an input handler that brings windows/screens to the front when double clicked.

PCalc - V1.0 of a programmer's calculator. Includes binary, octal, decimal, hexadecimal.

Asteroids - Famous space game on the Amiga.

FAUG 67: DiskX2 - Good sector-based disk editor. Ferrari - Interactive demo of Ferrari Formula One by Electronic Arts.

Pack-it - Takes all files and directories on a disk and puts them into one file. Useful for sending over a modem.

STOP PRESS

Highlights at the JUMPDISK STAND (no. 32) at the COMMODORE SHOW include the latest and all of the back issues of JUMPDISK + some very special PUBLIC DOMAIN Disks + the new JUMPDISK P.D. DIRECTORY Disk. The AMIGA JOKE DISK will be on display for the first time. Specialised software, including MARAUDER II (Brainfile 10), LATTICE 'C' (V4.0) and KICKWORK will be available at **SPECIAL SHOW PRICES**. Among the new arrivals are INT-SWITCH: switches off extra memory for those programs requiring only 512K and TURBO-PRINT: the revolutionary new Amiga Printing Program. Hardware specials include CUMANA DISK DRIVES and TIMESAVER. Well worth a visit.

We are **GEORGE THOMPSON SERVICES** - Our address is: FREEPOST, DIPPEN, BRODICK, ARRAN, SCOTLAND KA27 8BR. Our telephone No. is: (077 082) 234. All PUBLIC DOMAIN are £3.00 each or £30.00 for eleven inc. first class post. Please send a cheque (with your Bank Card No./Expiry Date on the reverse) or P.O. for the appropriate amount and we will despatch your order immediately.

(815)

PUBLIC DOMAIN - MORE NEWS

Even at a price level of £3.00 per disk, many Amiga Users shy away from using Public Domain material. This could be the result of their experience with poor quality P.D. programs on other formats or perhaps some of the less known Amiga P.D. libraries.

To entice you to try FISH, AMICUS and FAUG Disks we have put together the P.D. STARTER PACK. It includes the JUMPDISK LIBRARY DISK which details the contents of nearly 250 P.D. disks from three of the most popular libraries + The BEST OF AMICUS (4 disks) + GOLD FISH (3 disks). These disks have been compiled by the librarians, who consider the programs to be among their best. The cost of this very special collection is only £19.99. A saving of over £4.00 if the disks were purchased separately. If you already have the Directory disks please substitute any other P.D. disk in this advertisement.

A Plague on all their drives!

The Byte Bandit Virus

**More talked about than Dallas,
written by a life form less
advanced than an amoeba – THE
BYTE BANDIT VIRUS!**

This article concerns the second most common Amiga virus – 'Virus by Byte Bandit'. It is essentially a follow-up to our article on the SCA Virus, 'On Viruses and How to Kill Them'. Like the last one, this article is by Harry Broomhall (research) and Dave Parkinson (words) and first appeared on Compunet. It is now in the public domain and may be freely copied and quoted. Use of this information is at your own risk, of course.

There are now known to be about six different Amiga boot-block viruses. If you come across any you would like dissected, please send them to Ariadne Software, 273 Kensal Road, London W10 5DB – please clearly mark the disk 'WARNING – VIRUS!'

Introduction

In our previous article on the SCA virus, we warned of rumours that 'certain cretins' had been mutating SCA to produce new and nastier Amiga viruses. One of these recently came into our possession – it is certainly an SCA mutation, and certainly nastier than the original and its author is certainly a cretin. The symptoms of infection are that it appears to crash your Amiga randomly and corrupt your disks. However, it turns out that it does not really happen – it is just Byte Bandit's funny(?) little sense of humour!

Byte Bandit summary

Before looking at how the virus works, it may be worth summarising key points for people who may have been infected:

1. The symptom of a Byte Bandit 'pseudo-crash' is that the Amiga screen display suddenly blanks

out for no good reason. The way to bring it back is to press and hold down, in order, the keys along the bottom of the keyboard – left-ALT, left-Amiga (or CBM key), space-bar, right-Amiga, and finally right-ALT. This will bring the Amiga back to life to enable you to save any files you need to; you should then SWITCH OFF and proceed to exterminate the virus as described in 3 below.

2. The effect of Byte Bandit 'pseudo-disk-corruption' can be seen by booting off an infected disk, removing the Workbench then putting it straight back in – DOS will give a 'disk corrupted' requestor. This is NOT real disk corruption but a side-effect of Byte Bandit. If you SWITCH OFF, re-boot off a clean Workbench, then INSTALL the infected disk you will find that there is nothing at all the matter with it.
3. Generally, the way to get rid of Byte Bandit is as above: SWITCH OFF then wait a while to get rid of the virus from memory (30 seconds is more than enough), re-boot off a clean Workbench, then INSTALL the infected disk. (DO NOT use this on protected games.)

Like the SCA virus, the Byte Bandit mutation lives in the boot blocks of an Amiga Workbench or other bootable disk. Examining block zero with a sector editor will reveal the virus by showing the message:

'Virus by Byte Bandit in 9.87.
Number of copies'

The spacing, the spelling of 'copies' and the fact that nothing obvious appears after the colon gives us some warning of what to expect later. In fact, having put in a

message in ASCII, Byte Bandit stores the number of copies after it in binary. In the copy we examined, this number was 437. However, for reasons we shall see later, this figure is likely to be wrong and highly inflated.

Again like SCA, the virus code is read in and executed by AmigaDOS at boot time, at which point it wedges itself into the system before proceeding with normal DOS boot. SCA copies itself into the bottom of system stack space and wedges an Exec vector called on re-boot; Byte Bandit tries to be cleverer than this by actually allocating some memory and copying itself there and by stealing two vectors. One is concerned with trackdisk, device (low-level disk io) and the other Exec's vertical blank interrupt vector.

The reason for bothering to allocate memory and relocate is as follows: While hiding in the system stack worked fine on the A1000, it is not safe on the A500 or A2000, in which the system stack may be moved out of its old place in chip memory. This means that SCA, may end up floating in free-memory space where it can get overwritten.

Byte Bandit therefore takes a different approach by doing a sort of bodged Exec AllocMem: The virus then copies itself into the allocated memory, where it can live quite safely. Having relocated, Byte Bandit calls a subroutine which searches the device list for trackdisk device: If this fails Byte Bandit aborts by branching clean out of his subroutine back to a point in the routine which called it (good stuff eh?) – this would be disastrous if it ever happened. Fortunately, he WILL find trackdisk device – he then bodes it by patching its BeginIO vector. Finally he also patches Exec's vertical interrupt vector.

Next, the virus protects itself from re-boot, by using an Exec facility called RomTagsInRam. This was put in to allow the Amiga software people to patch the normal ROM

continued on page 87

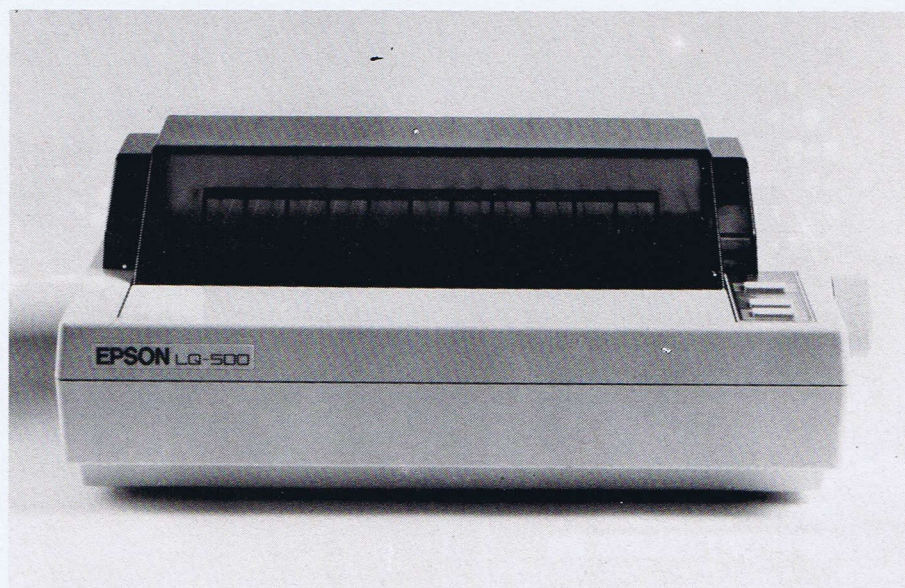
EPSON LQ-500 PRINTER

Can 24 pin printers hope to compete with the increasingly popular laser printers? Bill Donald analyses Epson's latest hope.

Up to the beginning of 1986, many pundits were predicting the demise of dot-matrix printing technology. The laser printers were set to conquer the world of personal computer printers. It seemed obvious that the dot-matrix printer manufacturers were not going to take the laser onslaught lying down and their first response was to introduce 24-pin printers. This meant that they could reduce the prices on their earlier 9-pin printers and slow down the market growth of laser printers. To some extent this tactic has succeeded, because many laser printer users have discovered that the configuration of these printers can be extremely tedious. While no one would dispute the fact that a laser printer gives excellent quality of reproduction, the print quality from a 24-pin dot-matrix printer, in many situations, is just as acceptable.

The remaining factor of the battle for supremacy between laser and dot-matrix for the dot-matrix manufacturers was the purchase cost. While laser printer prices have fallen, dot-matrix prices have also been reduced and at a faster rate. The leading light amongst the dot-matrix printer manufacturers, namely EPSON, need no introduction. Their latest 24-pin printer, the LQ-500, is designed to sweep the lowest reaches of the 24-pin market and steal purchasers from the upper segment of the 9-pin market. In addition to providing superlative printers, EPSON are not noted for making tactical errors in product marketing. The LQ-500 seems ready to confirm their place as market leaders. But what is so special about this printer?

The LQ-500 is supplied with a manual single-sheet feeder and reasonably comprehensive manual. The tractor unit is easily detachable to allow you to use plain paper as an alternative to pin-feed. The drive unit is a pull-through type rather than the more awkward push-through type found on the FX-series. The tractor unit retainers are made of plastic and while not looking too flimsy, I would suggest you exercise some care in re-



moval. The manual single-sheet feeder coupled with the detachable tractor means that the LQ-500 can handle three types of paper – pin-feed fanfold, plain edge fanfold and single sheet.

Overall print speed is the lowest of the LQ range, albeit faster than many 9-pin printers. However, this is not an important factor for Amiga users since a print job can be spawned off as a separate task. It is somewhat amusing to view the current hype surrounding the multi-tasking features of the much vaunted OS/2 operating system from IBM when the Amiga always had this facility – and it has been available for the last three years!

One feature I specifically looked for when I was evaluating which 24-pin printers to purchase was the range of character modes. A standard LQ-500 offers the following: Double-wide, Double-high, Condensed, User-defined. Graphics: Single, Double, Triple, Quadruple, Hex. Underline, Italics, Emphasized, Double-strike, Superscript, Subscript, Outline, Shadow.

This range, with the exception of the graphics mode, is available to all type-

styles or fonts except superscripts and subscripts. Unfortunately, for the last two you have to search the manual carefully in order to find the control modes. They are listed under the heading of "Command Summary", section "Select Character Style – ESQ q".

The LQ-500 has three fonts built-in: Draft, Standard Roman and Sans Serif.

The draft font mode offers the highest print speed and I generally use this for program listings. Standard Roman and Sans Serif are the true 24-pin characters and can also be set to proportional spacing. The quality of these characters is superb and coupled with proportional spacing means that your text really does look professional and polished.

You may extend the range of fonts by purchasing ROM cartridges which plug into the motherboard. The ROM font range suitable for the LQ-500 is: Courier, Prestige, Script, OCR-B.

A cover on the right-hand side of the printer exposes the DIP-switches and ROM socket. I found that refitting the cover is particularly fiddly and I usually leave it off. I purchased one ROM cartridge, the OCR-B font for optical charac-

continued on next page

continued

ter reader purposes. Courier font is that usually found on most daisywheel printers, while Script font seems to be an italicised version of Sans Serif. Unfortunately, a lot of the character linkages do not line up too well. The Prestige font seems to differ little from the built-in Standard Roman. One point to be aware of before purchasing any of the ROM font cartridges – none of these fonts is proportional.

This printer has 8k of RAM already fitted. It can be utilised for three things – as a data buffer, downloading characters from the host, or as an area to copy the selected ROM characters into. Given the multi-tasking facilities of the Amiga, a printer buffer is probably superfluous and downloading characters from the Amiga

plication. The manual provides a tear-out sheet to form as a handy reference to the settings of each switch as well as covering the software "escape" codes. Some experimentation is necessary depending on the type of use you are putting the LQ-500 to. For example, as a professional writer I usually have the initial setting as proportional Roman font, whereas a programmer would probably be content with an initial setting of Draft font.

I found that this printer worked with all of the application software I have for the Amiga. The new version of the system software, version 1.3, already has a driver for the Epson Q printer series. This means that you have full access to the features of your LQ-500 from the CLI.

The LQ-500 provides five graphics modes or densities with a certain degree

RX-80. I checked the difference with a service engineer, given that they looked identical. His response was that although the mechanical aspects of the ribbon were identical, the ribbon itself was a very much finer weave than that used by the 9-pin printers. Using a 9-pin ribbon on a 24-pin printer would quickly result in poor quality printing and in many cases damage to the printer head. This was due to the smaller pins passing straight through the coarser ribbon and wearing themselves out by direct contact with the paper. Despite the temptation, don't say you haven't been warned!

The question is, am I satisfied with my LQ-500? For the most part, the response is yes. I purchased the LQ in February 1988 (the LQ-500 was launched in the USA before the UK), thus I have the

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CDEFGHIJKLMNOPQ

ROMAN

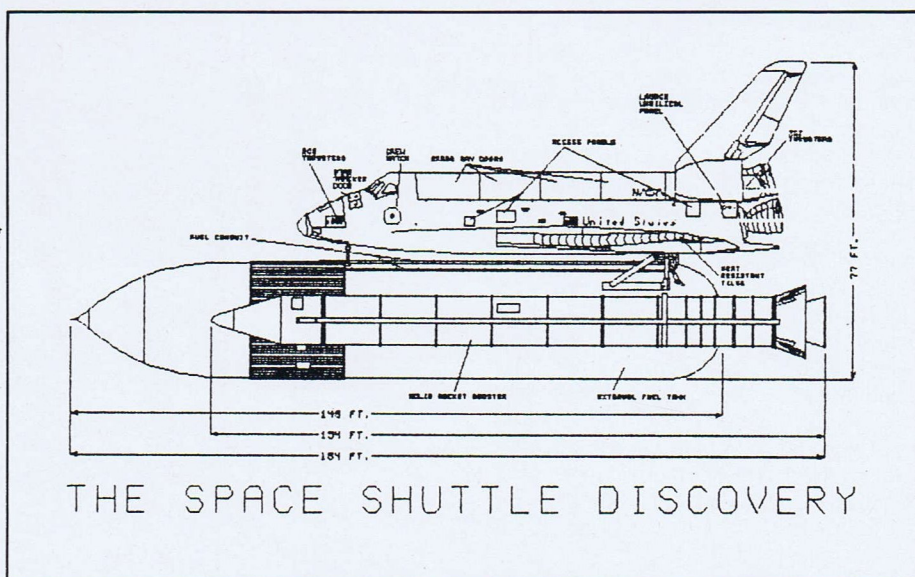
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ABCDEFGHIJKLMNO
BCDEFGHIJKLMNOP
CDEFGHIJKLMNOPQ

SANS SERIF

offers the most scope for creativity. This is not as simple as it sounds, particularly if you intend using the standard Amiga font range. This is because of the way in which the fonts are stored in the Amiga itself. The option of screen dumps will not give you the clarity and downloaded characters. The EPSON manual describes the downloading protocol, which is only half the story.

The DIP switches offer the usual wide range of initial configurations. This has always been one of the strengths of EPSON printers – the large number of DIP-switch settings, together with the ability to override these from your ap-



of compatibility between the 9-pin graphics of the earlier EPSON printers. The LQ-series uses only eight pins in "low-resolution" graphics and this has an effect on the shapes produced.

Although the horizontal DPI at hex-density exceeds that of most laser printers which is 300 DPI, the maximum vertical resolution of the LQ-series is only 180 DPI. In other words you cannot achieve a text appearance which is better than the 300 by 300 DPI of a laser printer but, for many users, this is more than adequate. The manual provides a reasonable amount of coverage on graphic modes – there is certainly room for a good deal more.

One very important point about the LQ-500 printer or indeed any 24-pin dot-matrix printer concerns the ribbon. Users may be inclined to cut the cost of their primary consumable item, the ribbon, by trying to use those ribbons for 9-pin dot-matrix printers. A 24-pin ribbon is generally about twice the price of a 9-pin ribbon, so the thought is not unreasonable. For example, the LQ-500 ribbon case looked identical to that used on my other EPSON printer, a venerable

advantage of some months' experience with this printer. The documentation problems highlighted in this review, i.e. difficulty in finding control codes for the shadow/outline modes and the weak coverage on graphics, need rectification. The overall construction of the LQ-500 is not exactly flimsy, but reflects the price of being one of the cheapest 24-pin printers around. Access to the interior is not simple either – you have to employ a screwdriver to lever the plastic retaining clips. You cannot print labels with the LQ-500 because there is no retainer bar fitted after the print head. I would recommend this printer for any Amiga user wishing to improve the quality of printed text and who does not want the expense, loss of working space and intricate setting up that a laser printer demands. If you are in the market for any type of printer, you would be unwise not to look the LQ-500 over.

B.D.

Price: £385.00 + VAT
Contact: Epson UK Ltd, Dorland House, 386 High Road, Wembley, Middx HA9 6UH. Tel: 01-902 8892

DRUM STUDIO

As the Amiga's music software starts to mature, more and more companies are getting in on the act. Paul Andreas Overra checks out the latest from Robtek.

Drum Studio is a 'Drum Machine' program from Hi Tec. It runs happily on the basic 512K single drive Amiga and is supplied on a single disk together with a rather small manual. The program allows you to produce percussion accompaniments by creating libraries of drum patterns (each up to eight bars in length). These patterns can then be combined to produce complete songs.

The Drum Studio lets you create, edit, copy, and erase drum patterns and songs and so provides facilities similar to those found with electronic drum units of the Yamaha/Roland variety. Patterns are entered in 'real time' and it is possible to adjust the 'quantize level', i.e. the resolution obtainable within a bar. This is always helpful for real time based drum programming as it helps you compensate

for slight timing errors when you are recording a pattern. It is also possible to control the pitch and volume of the 20 different drum instruments available in the Drum Studio.

Perhaps the first thing that strikes you about the Drum Studio is that all operations are performed using the function keys and other keyboard characters – no

'All operations are performed using the function keys and other keyboard characters.'

mouse or pull down menu facilities have been included. The manual points out that the program has been designed for fast and simple operation POSSIBLY

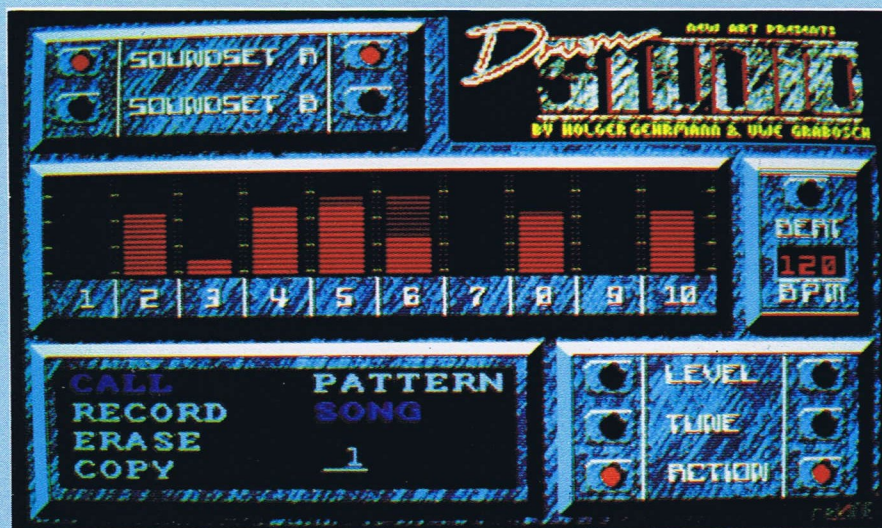
even without a screen. I do not know too many Amiga users who use their computers without a VDU screen and the only reason I could think of for this suggestion is that it might perhaps occasionally be convenient for working musicians not to have to carry a VDU around.

Drum Studio works ... it does what it is supposed to and, to be fair, it is possible to create some effective sounds but ... this much can be said for almost all such packages. The big question would seem to be whether or not Drum Studio properly addresses the requirements of its intended market. I don't know! I am still not sure who the writers of the package were aiming at. I felt that the program has neither the facilities nor the sound quality to be of any interest to the serious amateur musician. There are no MIDI facilities at all and this fact alone rules out any professional use. So who is left? There will no doubt be some home users who might want to 'play around' with a drum machine and those who might have electronic keyboards etc, at home and need some percussive accompaniment. Other than that I would think that the potential market is perhaps difficult to imagine. Drum Studio costs thirty nine pounds ninety five pence and at this price I would neither buy it nor particularly recommend it except to those home users previously mentioned.

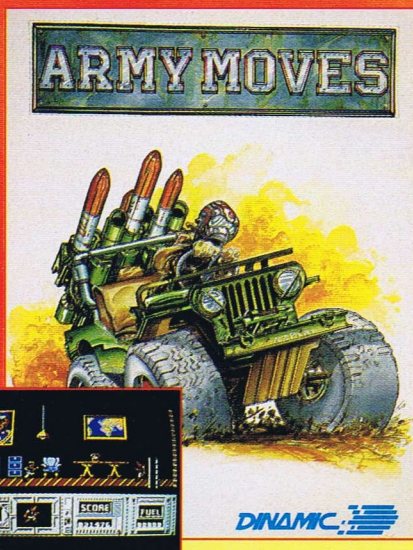
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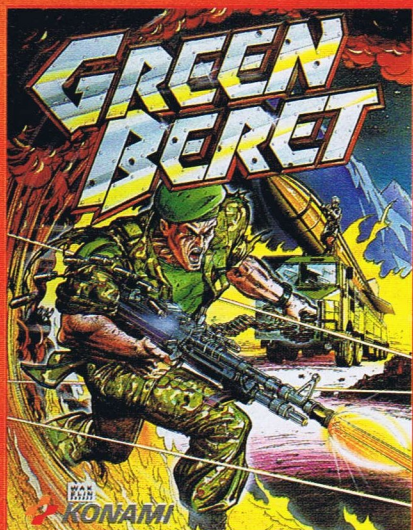
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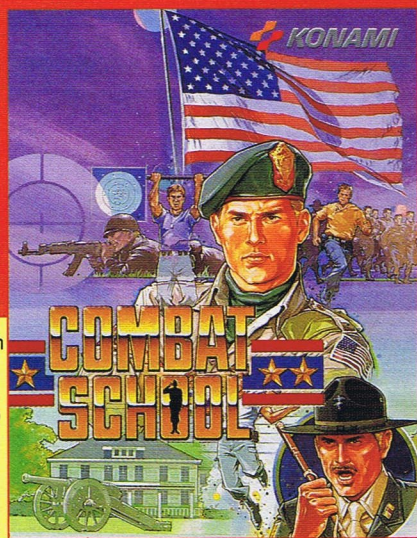
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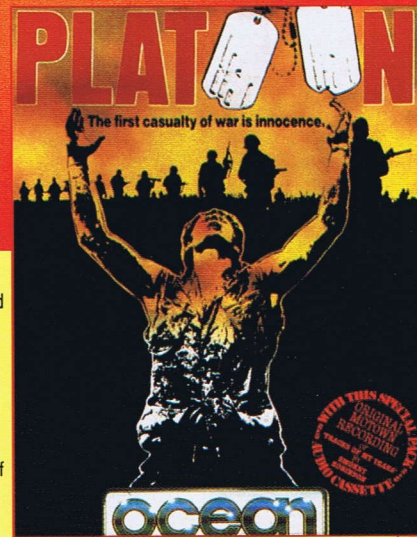


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HEARD IT ON THE GRAPEVINE

Chris Holmes, pencil behind one ear, tape recorder behind the other, keeps an ear to the ground for the latest rumblings on the entertainment scene. You don't have to have three ears to be an A.U.I. correspondent . . . but it helps.

It comes as no surprise to learn that many software companies are looking towards popular sporting events on which to base their computer games. Leading the way this month is Tynesoft who will be releasing Summer Olympiad, using the theme of the Seoul Olympics. This promises to be every bit as successful as Winter Olympiad which Tynesoft brought out earlier in the year. However, Tynesoft are not the only company who will be launching a game based upon the Summer Olympics. Epyx are at this very moment releasing the Games – Summer Edition, while Ocean also have their sights firmly set on Seoul and, more specifically, Daley Thompson's unique attempt to capture three consecutive Gold medals in the Decathlon. Ocean will be producing an Amiga version of an Olympic style game which is as yet untitled.

The other major sporting event is the European Soccer championships in Germany and it certainly seems that they have led to a surge in the number of soccer games scheduled to be released on the Amiga this summer. Heading your way any day now should be Microdeal's International Soccer, Grand Slam's Peter Beardsley's Soccer and SuperStar Soccer from Mindscape. All these games promise to be rich in Arcade style entertainment and offer the authenticity of the world's favourite sport. Mandarin, the newly established 16 bit software house, will also be releasing Kevin Tom's Football Manager II which will be a more strategic experience.

The newest company to join the 16 bit ranks are the recently-formed Exocet who will be releasing a horizontal scrolling shoot-em-up titled Foundations's Waste as their first venture into the Amiga market.

On the subject of shoot-em-ups, Nemesis, the classic Konami coin-up will soon be appearing on the Amiga, courtesy of a new agreement between Konami U.S. and Ocean. It seems that the deal between Konami U.S. and Ocean will mean that Amiga conversions of kit Konami games such as Gradius, Russian Attack, Jackal, Iron Horse and Salamander will all be produced by Konami U.S. but released in the U.K. by Ocean.

Another company who have recently signed up a top U.S. Amiga company is Activision U.K. who will now be releasing the entire Microillusion range at a more affordable price than before. Games that we should soon see over here include Land of Legend, Faery Tale II and Turbo.



After the recent release of the cute Bubble Bobble, Tynesoft are ready to release their own game based upon a character of equal whimsy.

The game is called ELF and we hear that it will be released shortly.

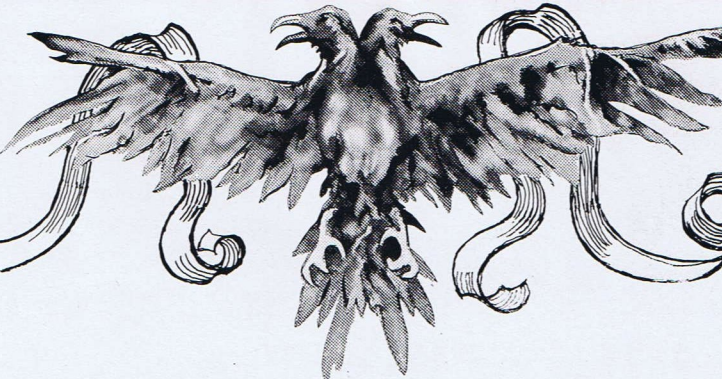
Another northern U.K. based company who are set to make their first moves into the Amiga market are Cascade. Ring Wars and 19 Boot Camp are due to be launched near Christmas but the good news is that the games will not be ported from the ST as Cascade will be using separate programmers for the 16 bit versions. Using the Amiga as the principle development system in 16 bit software is not something that most U.K. companies have yet done but Mastertronic are certainly the main exception. They have looked at the Amiga as a completely different proposition from the ST. Indeed many of the 16 bit hits origins are on the Amiga (remember Roadwars and Aaargh!). Latest offerings to come from Melbourne House/Mastertronic include World Darts, Motorbike Madness, Double Dragon, Quarterback and a conversion of the hit 8 bit adventure Lord of the Rings.

On the subject of more 8 bit conversions it has recently reached our ears that Outlaw will be converting the mega successful Shoot-Em-Up Construction Set by Sensible Software, originally the best 64 programmers in Europe. They are producing a soccer game that has been snapped up by Microprose and will also be appearing on the Amiga probably around the year's end. The Amiga conversion is being programmed by Richard Linel, the man responsible for the Amiga Barbarian. Another 8 bit conversion to watch out for is the popular XOR from Logotron which will be completely rewritten for the Amiga by the team that brought you STARRAY – or will bring you, when it arrives.

Conversions are something which most companies will continue to produce for the Amiga because they know they are on to a winner from the start. Some companies, however, are much bolder and are developing original 16 bit software. Paul Wokes, programmer supreme behind Novegen is currently working on a follow up to Backlash in his spare time called Skeltar. I say in his spare time because he is also putting the finishing touches to Damocles.

As you can see the pace is quickening on the Amiga entertainment scene. Watch this space for the latest developments.

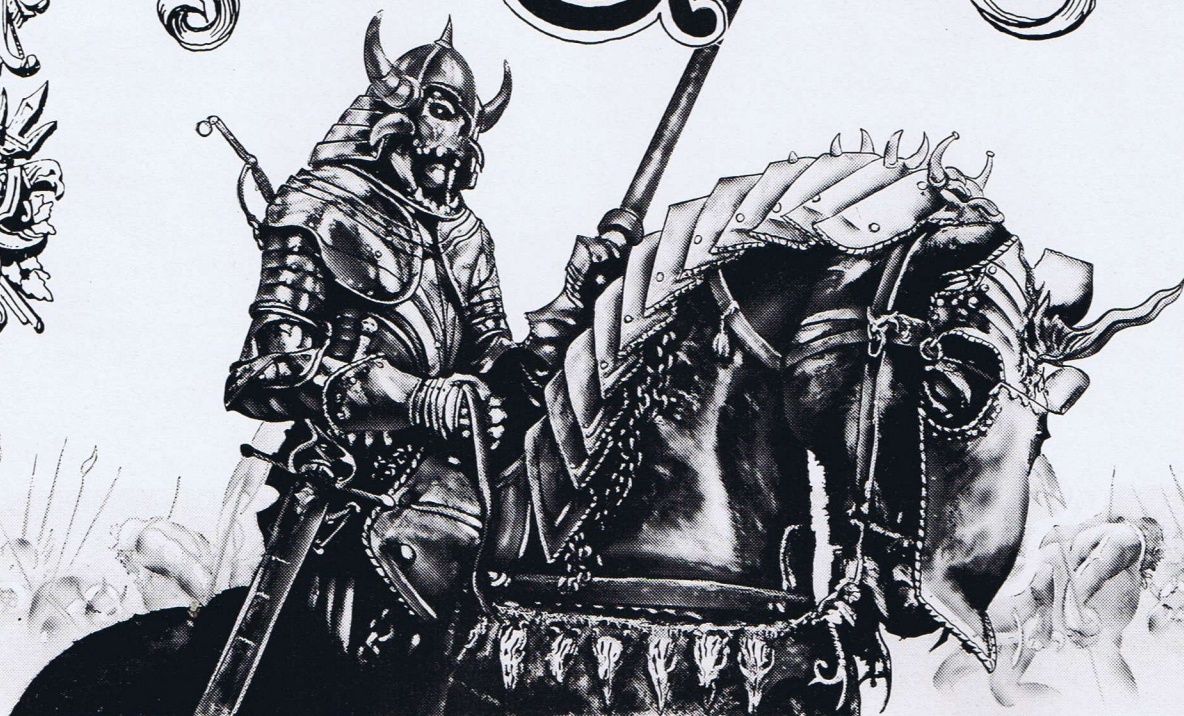
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Sherlock

The Riddle of the Crown Jewels

Infocom

Andy Moss follows some clues to the heart of an Infocom adventure, and ends up marvelling at the skill of a surrogate

Any new Infocom release is always a pleasure to review as rarely can you sample a piece of software that tries so hard to entertain. But there is such a thing as too much of a good thing, and frankly I am worried that the boys from Cambridge Mass. might fall in to this trap. Gone are the days when Infocom adventures were as rare as gold dust to the European market, as their distribution deal with Activision has ensured that we are kept bang up-to-date with their new product. This has more than doubled in the past year, and that in itself has led to new problems. With all these releases, how will their buying public cope with solving one in time to buy another, without waiting for help via 'Invisicules' books or through Adventure columns? The answer was to build a hint system into the software, and allow users the luxury of finding the answers themselves there and then. Sherlock and the Crown Jewels is one of the first to have this facility, and I must say, although it is handy for

'All the locations are famous London landmarks, and a map of Victorian London is provided.'

keeping the blood pressure at a reasonable level, it is tempting to peek at other hints other than the one I am stuck on. Human nature I suppose, but it does rather spoil the fun.

Apart from this new feature, Sherlock is the first Infocom 'franchise' so to speak. By that I mean the storyline and concept were written by a company called Challenge Inc, but using Infocom's adventure system, development software, and packaging. What does this mean for the player? Not a lot really as the game plays exactly like any other Infocom game, with you, the player this time taking the part of Watson who for once is the character with Holmes tagging along behind. This is because the famous detective has deduced that the evil Moriarty has set

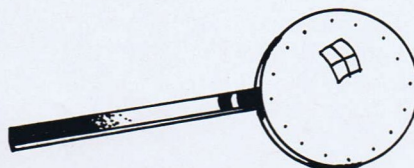
a trap for him and by letting Watson lead the investigation will foil the arch criminals plans.

The plot is all about the robbery of the Crown Jewels from the Tower of London, just before the Queen's Jubilee celebrations. If they are not recovered before the festivities begin then the Government will be more disgraced and fall. All the locations are famous London landmarks, and a map of Victorian London is provided along with a fabulous reproduction of the front page of the *The Times* dated 1887.

Within the game lie some riddles which, when solved, provide you with specific locations to go to. It is at these locations that further clues will be discovered.

One of my favourite sequences takes place inside Westminster Abbey, and careful mapping is needed here as the exits are not given; you have to find them. In here, you find many tombs of famous people such as Charles Dickens, Henry V and Queen Elizabeth I, and the puzzle is working out where the cryptic messages are hidden, and they are very cleverly hidden indeed. Holmes comes up with some very witty lines on occasions, as on loading a saved game he will say: 'Where have you been?' or 'Now may we proceed?' If you ask for a hint you get: 'Oh, if you must!' and other such offhand remarks. The game really wins out with its fine script, and a big well done to Challenge for constructing an imaginative storyline that complements the Infocom system beautifully. If this is a taste of what franchising can do for Infocom, then give me a whole banquet to eat of it, I loved it and recommend you rush out now and grab a copy fast.

Rating 10.



MIDI-II Interface

Giulio Zicchi finds a Swedish answer to a global musical problem.

It must be said that the one area in which the Amiga is presently behind the ST is regarding the availability of decent MIDI software. Certainly, enquiries I made at the last British Music Fair were disappointing to say the least. I can only assume that the current thinking is that people are prepared to pay for the software but since the Amiga requires additional hardware in order to implement MIDI, it is not such a lucrative market.

A Swedish company, Trilog Data, have introduced a MIDI interface for the Amiga which will possibly begin to change the situation. Called the MIDI-II (what happened to MIDI-I?), the Trilog interface is a small black container about the size of a disk box.

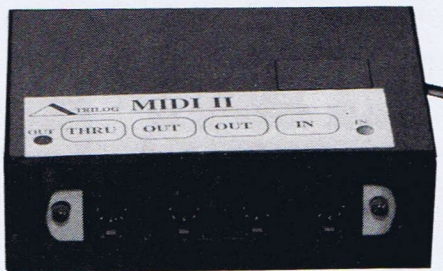
On the front panel there are one IN, one THRU and two OUT ports as well as two green LEDs, a welcome troubleshooting aid. I would have preferred to have seen the ports

"I was pleasantly surprised to hear the Amiga control the synth perfectly with this software."

labelled on the actual interface itself as well as in the manual since this omission may lead to confusion when setting up.

The device plugs into the serial port of the Amiga and I would stress at this point that you should NEVER plug any piece of hardware into any computer without ensuring the machine is turned off. Carefully read the relevant instruction manual. The interface is powered by its own separate mains adaptor although this does seem a little unnecessary as the Amiga is quite capable of supplying its own five volt supply.

Since I am suffering from the aforementioned dearth of MIDI software, the next problem was to test the interface. First of all I tried the Deluxe Music Construction Kit which allows the assigning of all sixteen channels. I connected my synthesiz-



er to the interface and booted the program. Initially some sounds were made at the synth which operates in all MIDI modes but D.M.C.S. proceeded to Guru shortly after data was sent. Undeterred, I tried again but the result was the same.

So I moved on to Soundscape's Pro Midi Studio and the results were much better. This program allows control over a good range of MIDI functions and will send bend information, pressure change etc. I was pleasantly surprised to hear the Amiga control the synth perfectly with this software.

The next thing for me to try was to see if I could write a small piece of software to control the synthesizer via the interface. It was at this stage that I found the manual to be woefully inadequate. Note to manual authors everywhere: I realise that most people that buy this type of equipment are likely to be application users but it would be nice to open a manual once in a while and see a short program example or even some technical information regarding the device.

Actually setting up the Amiga for

MIDI communications is very easy. Select 'change serial' from Preferences, click on the baud rate gadget until it reads 31250 (MIDI baud rate), select no handshaking and 8 bit data and save back to disk. The system-configuration file will now automatically set up the Amiga for MIDI on power up.

Without getting heavily into the technical side of things in this article, I should explain that it is now possible to treat the serial port as just another device, named 'SER:' in the same way as you would talk to the

"I wrote a very small assembly language program (necessary for speed) which sends Note ON data to the interface and receives messages from the synthesizer itself."

disk as 'DFO:'. I wrote a very small assembly language program (necessary for speed) which sends Note ON data to the interface and receives messages from the synthesizer itself. Everything worked, and still works, perfectly. I can only assume that the problem with the D.M.C.S. is a software one since using the legal i/o routines I have not crashed the machine once. Bearing this in mind though, you should ALWAYS check compatibility before purchasing any piece of hardware for your computer.

So full marks (manual excepting!) go to Trilog for helping all Amiga musicians and encouraging programmers to start writing some quality software for this machine.

G.Z.

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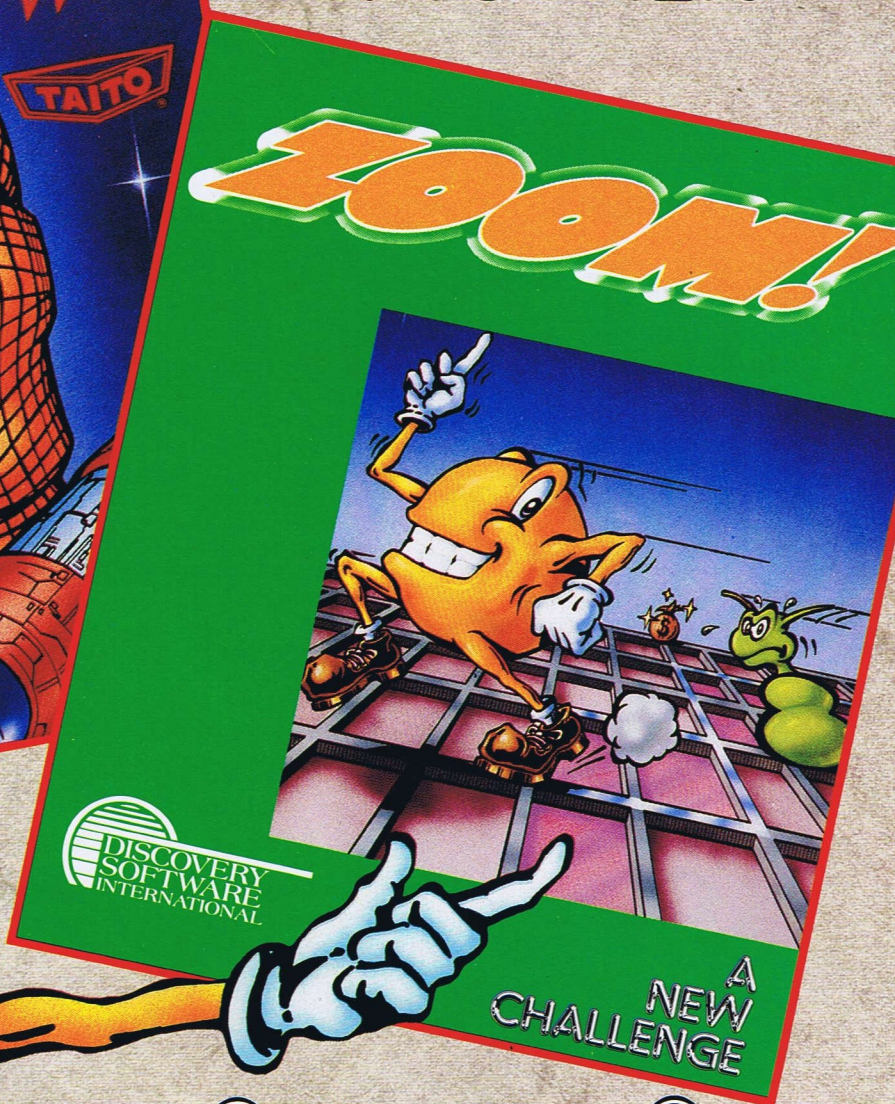
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On a recent visit to the US, Electronic Arts gave AUI a full preview of an entertainment product on which they had been working for more than 18 months. *Interceptor* was impressive — very impressive. It contained elements that made it immediately recognisable as one of the most outstanding packages to appear on the Amiga. In graphics and gameplay, in sheer scope and imagination, it looked like having tremendous impact. Now it has arrived and Tony Horgan test flies what just could turn out to be a legend in its own time.

Spectacular graphics are something of a rarity when it comes to flight simulations. Too often they rely on bland landscapes and small jerky line drawings for enemy planes to recreate the exhilarating sensation of flight. As you can see from the screenshots in this review, *Interceptor*'s programmers have surpassed this basic stage and come up with the best looking flight simulation on any micro.

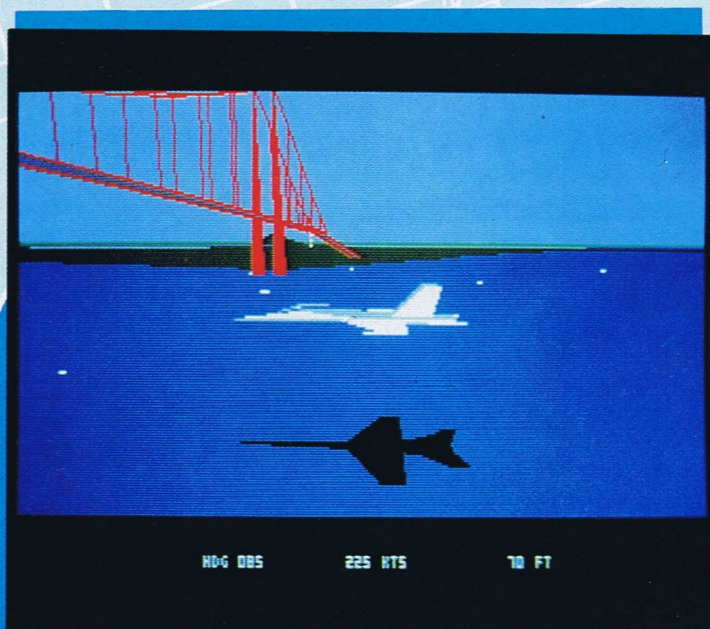
F/A-18

Inter

As the game loads you are presented with a highly effective picture of the *Interceptor* in flight, viewed from under the wing. Megabyte users get a short passage of music to accompany the graphics. One of eight options can now be selected. Free flight is a handy mode for beginners, allowing you to get the hang of flight without being attacked by the enemy.

After you have chosen whether to pilot F-16 Falcon or the F/A-18 Hornet and picking your base, *Interceptor* immediately shows you its class. A map pin-points four airbases. I expected the view to then flip a view from the cockpit on the runway. However, to my amazement the view zoomed in from the skies right down to the base and up to the plane waiting on the tarmac. A brief glance at the control instructions is all you need to get airborne (no half hour take off procedures here). San Francisco Bay is the setting for all your flights. In free flight mode you can practice take-offs, landings or even flying through bridges.

From inside the plane you can spin the view as if you had the neck of an owl, allowing 360° vision, although really to appreciate the power of



the game you need to use the imaginary spotter plane. I found this by far the most enjoyable way to play the game, the ten different angles are much more involving than the standard cockpit view. From here you can see your missiles launching, undercarriage and arrestor hook being raised and lowered, chaffs and flares being discharged and even the pilot ejecting. This is what makes the game outstanding for me. Flying past the smooth, solid graphics of the carrier and other structures from the cockpit is fun but cannot

'To my amazement the view zoomed in from the skies right down to the base and up to the plane waiting on the tarmac.'

come close actually to seeing your plane dive, bank and roll around at the same time. The glow as the afterburners kick in is typical of the whole game.

A practice mode has been included which teaches a number of manoeuvres with the use of a tutor plane that performs each move in sequence with you following on behind.

mission you could attempt before qualification, but landing on the carrier is soon mastered. Not everyone will go for *Interceptor* (some just do not like flight sims) but the vast amount of detail and exceptionally attractive features will gain it a wider audience than just the dedicated simulation fans. I can safely say I have never played a more convincing flight simulator, and I bet you will not have played a better one either. If you use your Amiga for anything other than programming, you must not miss *Interceptor*. It will be very hard to find any game that gets near it for sheer excitement and playability.

T.H.

ceptor

Electronic Arts

Jetting around with no particular aim is obviously not enough to make a game in itself. A number of missions are available but only after you have proved your worth. To qualify for a mission you must take off from a carrier anchored a short way off the coast, fly around and land back on the ship. I found the easiest way was to take off and fly dead straight for a short while before looping up and over the carrier and onto the opposite end of the runway. With that done

'The vast amount of detail and exceptionally attractive features will gain it a wider audience than just the dedicated simulation fans.'

you can save the President, see off intruders or rescue grounded pilots among other adventures.

Considering all the graphics are solid as opposed to transparent vectors, the game plays surprisingly quickly. There are some agreeable sound effects and realistic changes in the engine sound. It would have been nice to have had one



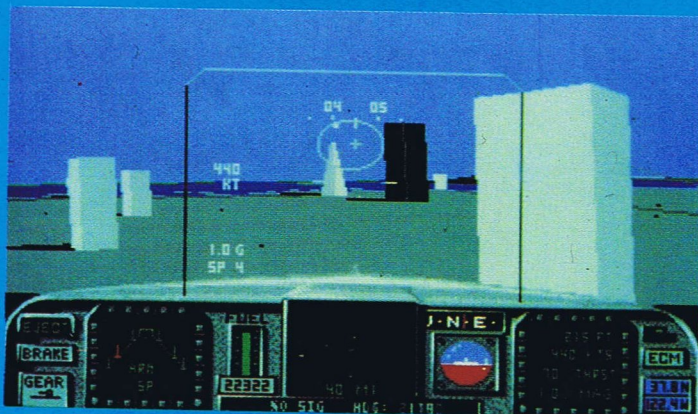
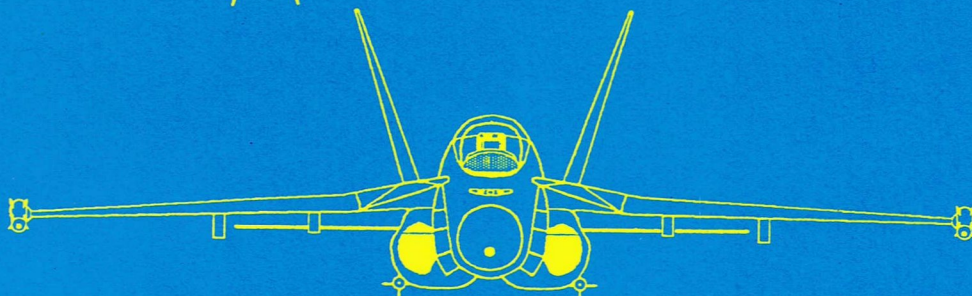
MISSIONS

There are a number of missions to carry out as pilot of an F/A-18 simulator. Four are outlined in the manual

with further adventures available after each of the first four are completed.

1. Visual Confirmation

An unidentified aircraft has been detected in your airspace. It may be friend or foe, so hold your fire unless attacked. Your orders are to locate and identify the aircraft before returning.

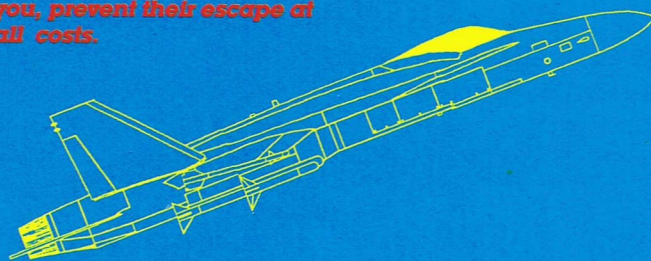


2. Emergency Defence Operation

The Commander-in-Chief is unaware of an attempt at this assassination which would severely undermine your defence. Scramble from the deck of the carrier and divert or destroy the aggressors. This demands highly skilled and dogfight manoeuvres and a calculated carrier landing.

3. Intercept Stolen Aircraft

A couple of F-16 Falcons have switched allegiance from the US Air Force to the enemy's side. Accompanied by two escorts they have been spotted and must be stopped. Your job is to let them know the game is up. If they agree to return home, escort them back to base. If they ignore you, prevent their escape at all costs.



4. Search and Rescue Operation

A friendly pilot has been forced to eject and is known to be out there somewhere. With your radar and eagle eyes you must seek out the pilot and drop a rescue pod. With that done you can return to the carrier, always alert to enemy planes in the vicinity.

Perhaps the most vital, certainly to a US audience, would seem to be the 'Save the President' mission. (Though some would argue that you might not want to try too hard for the present incumbent!) But they all are absorbing, all challenging and very worthwhile.

Graphics: 9
Sound: 7
Playability: 9
Value: 8
Price: £24.95.



STRUCTURED PROGRAMMING

Professional programmer – Les Cooke – tells us of his ideas for good programming.

A program is like a book. It should have a beginning, a middle and an end. Unfortunately, most programs written in the 1960s and early 1970s were all middle. They catered for the special cases required for the beginning and end by dealing with them in the code that processed the middle by means of flags that indicated first time through and last time through.

Just as a book has chapters that each deal with individual topics, so should a program have separate parts that deal with individual processes. Once again these early programs fell short of this ideal. All processing was rolled into this general middle chunk. Large numbers of flags were required to make sure that the appropriate logic paths were followed for whatever was being processed at the time and you just had to hope that these flags were turned on and off at the right time, otherwise...

It is true that the use of subroutines was well-established by then but these were largely just 'utilities' for the program rather than separate pieces of logic for processing particular parts of the overall process.

These programs were very difficult to enhance, maintain and debug; as a consequence they were expensive to 'run'. The smallest, innocuous seeming change, could send the whole program careering wildly off course.

They were awkward to enhance because it was difficult to identify where the new function should go without disturbing the old function.

They were hard to maintain and debug because locating the actual code that was processing the function in question was, itself, a considerable task.

The reason for these problems is that it was almost impossible to be able to point to a piece of code and say what it was going to do in terms of the overall process. You could not be certain how it had got there, nor where it was going to go next, unless you knew what the settings were sometimes, of a dozen or so flags.

Something had to be done! It was Structured Programming was the answer. This was an attempt to bring order to the chaos of programming of those times.

So what is Structured Programming? How long is a piece of string? If you ask a dozen programmers, you will most likely

get a dozen different answers. I can only tell you what I think it is and, what it is not.

Structured Programming is a set of disciplines that allow a program to be designed so that the structure of the logic is suited to the structure of the data that is to be processed.

The disciplines include: identifying the hierarchic structure of the data to be processed; designing the logic, from the highest level to the lowest (called 'top-down') to have the same hierarchic structure as the data; using only three constructs for the logic – sequence, loop and case; using separate routines to process separate parts of the data (and to process no other parts). A program constructed using these disciplines will be easy to read, easy to alter and easy to debug. All this adds up to the fact that it will be cheap to 'run'. This is crucial to commercial main-frame installations.

'Most comments about Structured Programming will say something about how Structured Programming must not use 'GOTO's'

What – no mention yet of the 'GOTO'? Most comments about Structured Programming will say something about how Structured Programming must not use 'GOTO' and will often imply that any program without a 'GOTO' is well structured. This is absolute rubbish!

A well structured program will almost certainly not require a 'GOTO' by virtue of its good design. You do not have to set out to avoid them, it is just that the need for them does not occur. However, there are some cases in Structured Programming where the judicious use of 'GOTO' can be a life-saver, particularly in routines that verify and report errors on incoming data.

Conversely, the fact that a program does not have any 'GOTO' statement does not automatically mean it is well-structured.

Another common misunderstanding about Structured Programming is that the use of a particular programming language will automatically result in a well-structured program. Untrue! A well struc-

tured program can be written in any assembler language (or even machine code), just as a poorly structured program can be written in any high level language such as Pascal.

There is only one element that can ensure a well-structured program and that is YOU – the programmer. The language you choose merely makes it easier, or more difficult, to implement your design.

Languages that provide loop (DO WHILE/UNTIL, or REPEAT) and case (IF THEN ELSE, or SELECT WHEN OTHERWISE) constructs will make it easier to implement a well-structured program. Languages that do not provide these will make it harder but not impossible, although you may have to resort to the 'forbidden' GOTO.

Let us go through a very simple example. Suppose we have a file that contains a number of records. Each record can be either type 'A', 'B', or 'C' and there may be some invalid ones in the file. The file is in an unknown order. We want to read the entire file and process the different record types each in a particular way, reporting the invalid ones. The actual processes are not important in this example.

IDENTIFY THE STRUCTURE OF THE DATA: just like our book at the start, the file has a beginning, a middle and an end. Even though there are no special beginning and end records in this file we must consider them to exist logically. Figure 1 shows the structure of the file in a hierarchic structure diagram. Note that the file is a sequence of 'Start', 'File Body' and 'End'. 'File Body' is an iteration, repetition, or loop, of 'Record' and that 'Record' is a case of record types. 'A', 'B', 'C', or 'Unknown'.

Why have I insisted on the 'Start' and 'End' parts? Because there is always something special to do at the start and end of a program that is not relevant to the middle part – even if it is only opening and closing any files. In this case 'Start' can open the file and read the first record. 'End' can close the file. 'Start' could, if you were printing a report as well, print the title page, while 'End' could print a summary page.

IDENTIFY THE PROCESSING STEPS AND REFINE THE LOGIC CONSTRUCTS. The processing steps required to process this file are: 1) open the file; 2) close the file; 3) read one record;

4) process record type 'A'; 5) process record type 'B'; 6) process record type 'C'; and 7) report the unknown record type. Note that these steps have not been identified in the order necessary to the logic of the program, it does not matter at this stage.

The only logic construct that needs refining at this stage is the loop that 'File Body' uses to process the records. In this case it is simple: we DO Records UNTIL end of file.

ATTACH PROCESSING STEPS TO STRUCTURE DIAGRAM: Figure 2 shows the processing steps defined previously attached to Figure 1.

'Pseudo-code is a technique of writing a program in English rather than a programming language'

WRITE THE PROGRAM: this can be done in either a language of your choice, or in pseudo-code. Pseudo-code is a technique of writing a program in English

rather than a programming language. It is useful for large programs in that it allows you to verify the function of your program without committing it to any particular programming language. You can find a lot of mistakes this way.

The pseudo-style for our example would look like this:

```
PROGRAM 'EXAMPLE'
  Procedure 'START'
    open the file
    read one record
  END Procedure 'Start'
  Procedure 'File Body'
    LOOP until end of file
    Procedure 'Record'
      CASE
        when record type = 'A' then do Procedure 'A'
        when record type = 'B' then do Procedure 'B'
        when record type = 'C' then do Procedure 'C'
        otherwise report invalid record type
      END CASE
      read next record
    END Procedure 'Record'
  END LOOP Until end of file
```

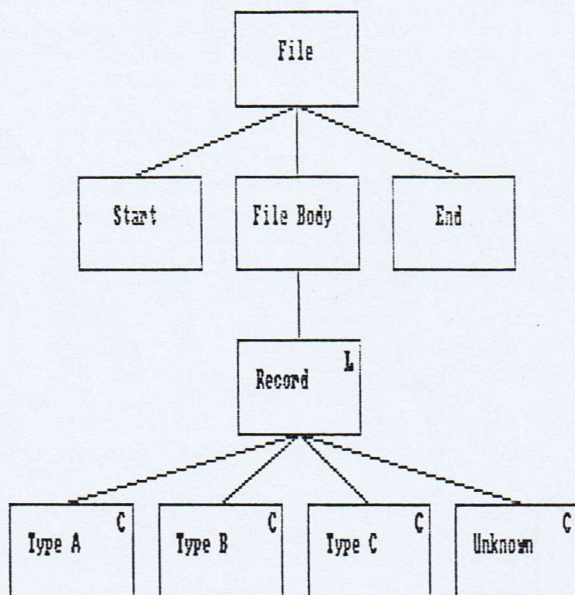
```
END Procedure 'File Body'
Procedure 'End'
  close the file
END Procedure 'End'
END PROGRAM 'EXAMPLE'
```

You can see that this example of pseudo-code is almost a programming language but not quite. Its advantage is that you do not have to worry about the syntax of, or implementation in, any particular programming language at this stage and you can expand or contract the style as you wish. You may, at certain points, expand the pseudo-code into quite detailed English in order to explain some complex processing. For simple parts you can contract to almost BASIC like statements.

Anything missing? Yes, what has happened to the flow chart? Well, I have done the only thing worth doing with a flow chart – thrown it in the bin. I have not used a flow chart since 1975 and I don't expect to use one again. The structure diagram is a much better tool.

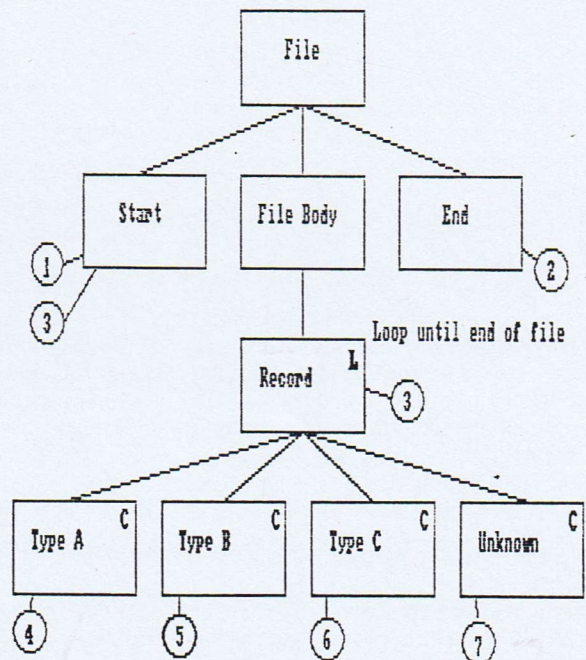
One last point. Structured Programming or not – DO NOT FORGET THE COMMENTS!

L.C.



L: loop
C: case

Fig 1



L: loop
C: case

1: open file
2: close file
3: read one record
4: process record type A
5: process record type B
6: process record type C
7: report unknown record

Fig 2

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PD

(Public Domain Software)

Ray Tracer

Ray tracing is a very processor intensive graphics calculation technique which enables the production of images with real-life 'lighting effects' and almost three-dimensional qualities. This kind of effect is most commonly seen depicting a series of shiny 'balls' on a receding 'landscape' type backdrop. Tracer was developed originally by Friederich Knauss to study how ray tracing works. It is capable of depicting a number of balls (up to 150) and a plane that is covered with a tiling of any bitmapped picture.

The program generates an IFF file in 640x400, 16 colour mode, and can use any of the standard IFF viewers to examine the results, or may be loaded into Digi Paint's 320x400 mode with little degradation of image and be modified and have colour added to it – since the pictures produced (on the version I have, anyway) are in black and white.

There are three necessary input files: ball data, the parameters file and a tiling pattern bitmap. The tiling bitmap can be digitized data, in the form of scan lines not longer than 512 bytes followed by newlines. Several interesting examples are supplied to get you started, as are sets of ball data.

Commands (from the CLI) take the following form:

tracer -r -o [file] -p [file] -s <file>

-a <number> -S <number>

-r if used, causes the output to be produced rotated 90 degrees anticlockwise, which is handy for printing wide images.

-o Selects the output picture filename.

-i Selects the input (ball) data file.

-p Selects the parameters data file.

-s Selects the file containing the tiling bitmap.

-a Selects the level of antialiasing, as an integer from 1 to 9. This determines the number of subcells computed per pixel.

-S Defines the contrast of the tiling pattern.

Tracer is a very effective (but very slow – it can take 2 hours or more to create a picture due to the large amount of number-crunching required by ray tracing) program that is an ideal taster for those considering purchase of more advanced commercial ray tracing packages such as Sculpt 3D. Those who wish to show off the remarkable graphics of the Amiga at minimum cost need look no further!

S.W.

TagBBS

Those of you into communications will no doubt at some time or another have pondered the possibility of setting up your own Bulletin Board System like many other computer users across the globe. There is a very good chance that you already have a suitable modem (Hayes compatible and speed buffered) and you also, of course, have a computer! What might have put you off 'putting a toe in the water' and setting up a Bulletin Board on your Amiga is the cost of software; like most serious programs for our favourite micro, commercial 'BBS' systems are not cheap (£99.95 for the popular BBS-PC being typical). If you are not sure whether you want to commit yourself to such an investment, or you want to run a basic board for a trial period, then the field of Public Domain and Shareware software offers a number of possibilities.

TagBBS is a Shareware bulletin board system; simple to set up and easy to maintain (although you should have access to a good ASCII text editor first), TagBBS was written by Paul Hughes and, although I have yet to find a UK board using it, I understand that it is quite popular 'across the pond' with US Sysops (SYStem OPerators) who are running bulletin boards.

Since TagBBS is Shareware (if you like it and wish to continue using it after a trial period, you must send a contribution to the author – although you may freely distribute it to anyone who would like a copy), the author suggests a donation of \$25.00 be sent to him if you intend to keep using the program on a regular basis. If you find the system suits your needs, then this could prove to a very economical way of setting up your Bulletin Board! Remember, though, that apart from your Amiga and a Hayes compatible autoanswer modem, you will also need at least two disk drives to get started with a small system. If you get really enthusiastic and your board becomes popular, you will eventually find a hard disk essential.

S.W.

Snapshot

Snapshot is a small utility program for dumping screens to your dot-matrix printer. Like many other Amiga utilities such as POPCLI, it works in the background and does nothing until you press CTRL+ESC. It then outputs the screen display to an Epson-compatible printer.

The program was written by Francois Rouaix and is very useful for making a quick dump of your latest Amiga BASIC graphics program, or even a game hi-score table (as long as the game does

not require you to reset or turn off the machine to boot it). Like many small utilities, you wonder what it is good for until you have it, then you find a thousand and one reasons for it to be indispensable!

S.W.

Free

Free is a handy little program showing you how many bytes are freely available on any storage device attached to your system that AmigaDOS sees as a valid drive.

The program keeps a list of up to six drives and this list may be cleared or added to at any time by the user. This one is handy for those of you who, like me, cannot be bothered to work out how the number of blocks free shown by the INFO program on your workbench disk relates to the number of free bytes!

S.W.

Ray Tracer, TagBBS, Snapshot and Free can all be found on Fish Disk 66.

The following three disk utilities were produced by Copperstate Business Systems and can be found on the old Faug 8 disk. They are all Public Domain utilities and can be copied, given to friends etc, but must not be sold. They are run from the CLI by entering the correct directory and typing the program name.

Quickcopy

This is an easy to use, two drive, disk copier, with one important difference – it ignores bad sectors. Therefore you can copy a disk that has errors on it. You may have discovered that the Amiga is rather fussy regarding the removal of the disk from the drive during a disk operation. Well if you should have this happen to you, you can make a copy of the corrupt disk and have a go at recovering the data on it and if you do make it totally useless then you will still have the original to go back to.

Fixdisk

This, two drive, program attempts to repair any bad sectors that a disk may have. There is not much for the user to do other than running the program.

Errorck

Errorck (error check) when run, will analyze every sector on a disk and report to the user any errors that it finds. It is very useful when used in conjunction with Fixdisk.

A.E.

Garrison II

Rainbow Arts



Fans of the original Garrison will be interested to hear of its sequel. What advances have been made in the re-writing of the popular Gauntlet clone? Surprisingly very few.

As before, the game comes on two disks with an identical loading screen that still reads 'Garrison'; no-one has bothered to add the II to the title. The similarity continues into the sampled guitar music followed by a new but less attractive picture of the warriors. From the list of five characters, two players can choose which to play. This seems meaningless on a machine with 512K as all the characters look identical. Of all the possible improvements that could have been made, I would have thought this the most obvious and easy to implement. The programmers thought otherwise but at least (how long before a game that needs 2 megabytes?) they are noticeably different for megabyte users.

Solo or as a team you plough on through the numerous mazes of monsters and goodies. An exit to the next level is usually located at the opposite side of the maze, taking you through crowds of fire breathing, energy slurping

goulies. Nothing new there, so just what is the difference? Graphically, I could see no change in Garrison II. Surely some more spritely animation could have been included. Even so, all of the ghosts, grunts, lobbers and so are reasonably well

mazes is a very minor contributor to the game's overall appeal and so failed to give me the sense that enough effort had been put into make this really worthwhile.

Because of the large amount of monsters on screen at once you could be impressed by the wealth of activity, but this also works the other way and often overcrowds the players. Garrison II would have made a decent sequel. I can see many owners of the original getting an expensive disappointment. For Gauntlet fans without a home-computer version, Garrison II should be taken into consideration. Anyone who has enjoyed Garrison I will obviously be interested, but £24.99 is very pricey for a new set of mazes.



drawn. Sampled gulps and jingles are well up to standard, but again they are no different from before. Where the sequel does differ is in the layout of its mazes. If one buys a sequel one could expect more developed version than this. The design of the

Graphics:	7
Sound:	8
Playability:	6
Value:	4
Price: £24.99	

LEATHERNECK

Microdeal

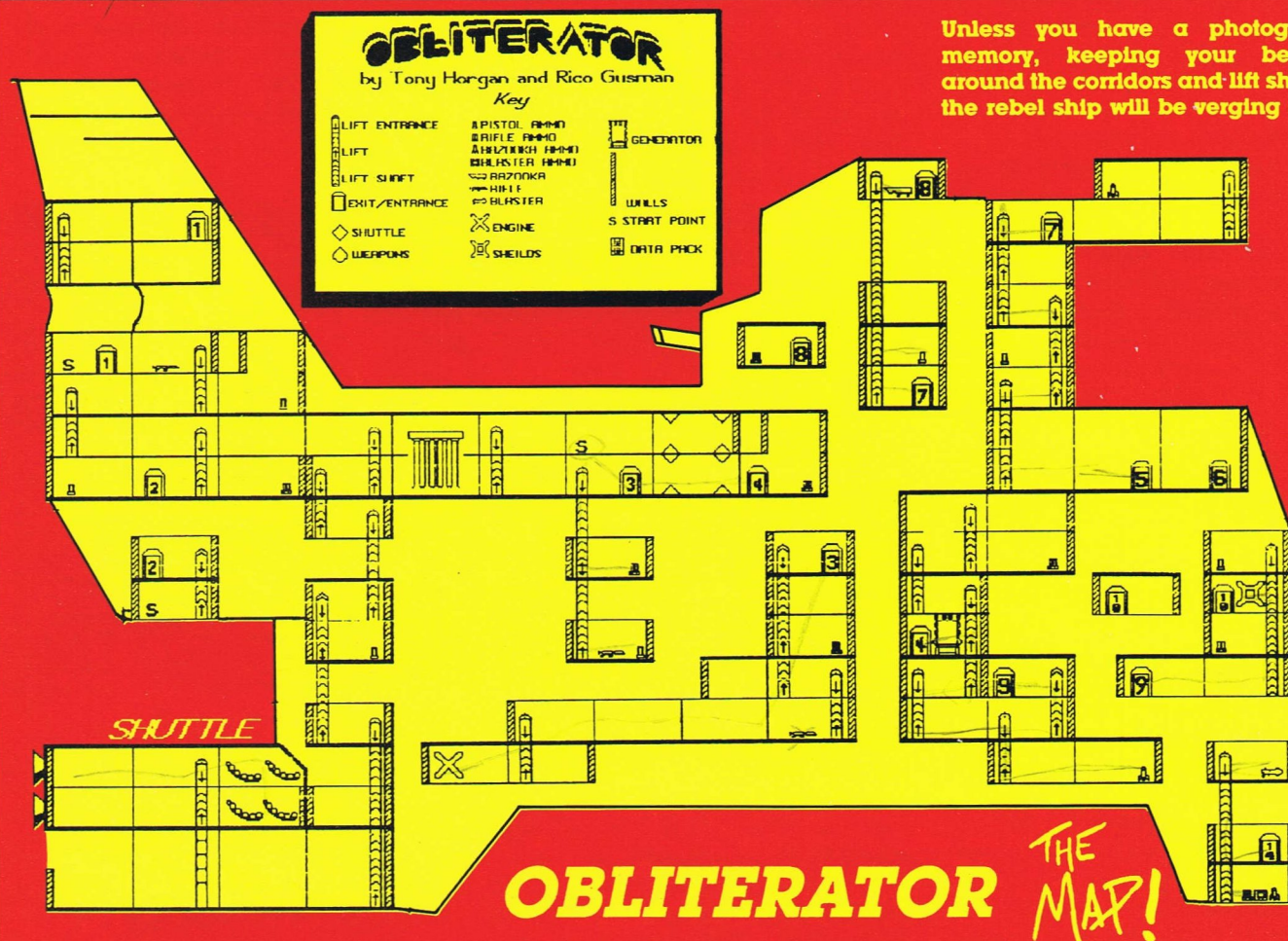
Until now the Amiga was without a version of Commando. Microdeal have now remedied this with Leatherneck, a variation on the theme with some new ideas for itself which comes from the experienced team of Steve Bak and Pete Lyon.

An apparently simple but really very difficult task awaits you: just shoot your way as far up the enemy territory as possible. Commando was a one man fight against the entire enemy forces, Ikari Warriors introduced two players and Leatherneck takes the idea a stage further with a possible four players on screen at once. With the standard set-up you will have to make do with two players, but for an extra £5.95 you can have a joystick adaptor that allows the four player game.

You and your comrades are dropped off at the southern end of the landscape, a different location depending on which fire button has been pressed. Any players that are left uncontrolled for more than a few seconds die away, which neatly eliminates the need to select the numbers of players.



To start, the enemies come at you in ones and twos which presents little problem. The real problems arise when you start ploughing up the screen trying to kill everyone in sight. This techni-



Unless you have a photographic memory, keeping your bearings around the corridors and lift shafts of the rebel ship will be verging on the

que fills the screen with soldiers, bullets and grenades that kill you off in an instant. Not only do the enemy bullets kill you but mere contact with the enemy is also fatal. Add to this the fact that players can easily shoot each other in the excitement and you have one real tough cookie of game. Wow!

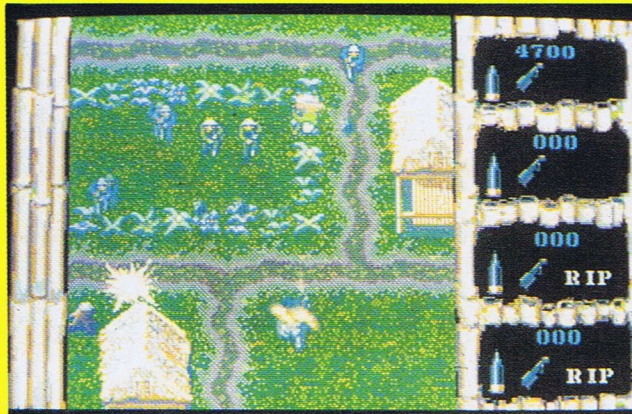
Along the way you fight through swamps, deserts and villages which are neatly drawn, but in general are rather featureless. However, the odd bit of variety such as the superbly drawn wreckage of a couple of aircraft strengthens the incentive to carry on – and on. All four of the player sprites are sharply drawn and smoothly

“Any players that are left uncontrolled for more a few seconds die away”

animated but the enemies could well have been enlarged. The element that stands out more than the graphics though is the difficulty level. A slightly awkward method of changing weapons adds to this.

Despite this difficulty, I still found Leatherneck a whole heap of fun. In the two player mode, a skilled partne could be a very big help. On the other hand, playing with a novice can be a right pain as you get shot in the back more often than shot by the enemy. The joystick adaptor should be ready any time now, but I only played in a duet.

Imagine an army of four Rambo look-alikes charging shoulder to shoulder up the screen. That could really be something! If you have a foursome available, the extra £5.95 should certainly be



worth it. A decent combination of effective graphics, loud and scratchy sampled booms and cries of bundles of action make Leatherneck a very welcome and worthy candidate to fill the Commando gap in the Amiga marketplace. Recommended.

Graphics: 8
Sound: 8
Playability: 8
Value: 7
Price: £19.95

impossible. That is unless you take advantage of our map of the entire ship, complete with starting points, component locations, weapons,

ammo and everything else of any importance. Used with the playing tips it should get you through Psygnosis latest graphical wonder. Thanks go to Hansen and Christopher Kendrick for their help in compiling the map.

Playing Tips

- * Take care when approaching big

ammo supplies; clusters of ammo are often booby trapped with guns and armies of aliens.

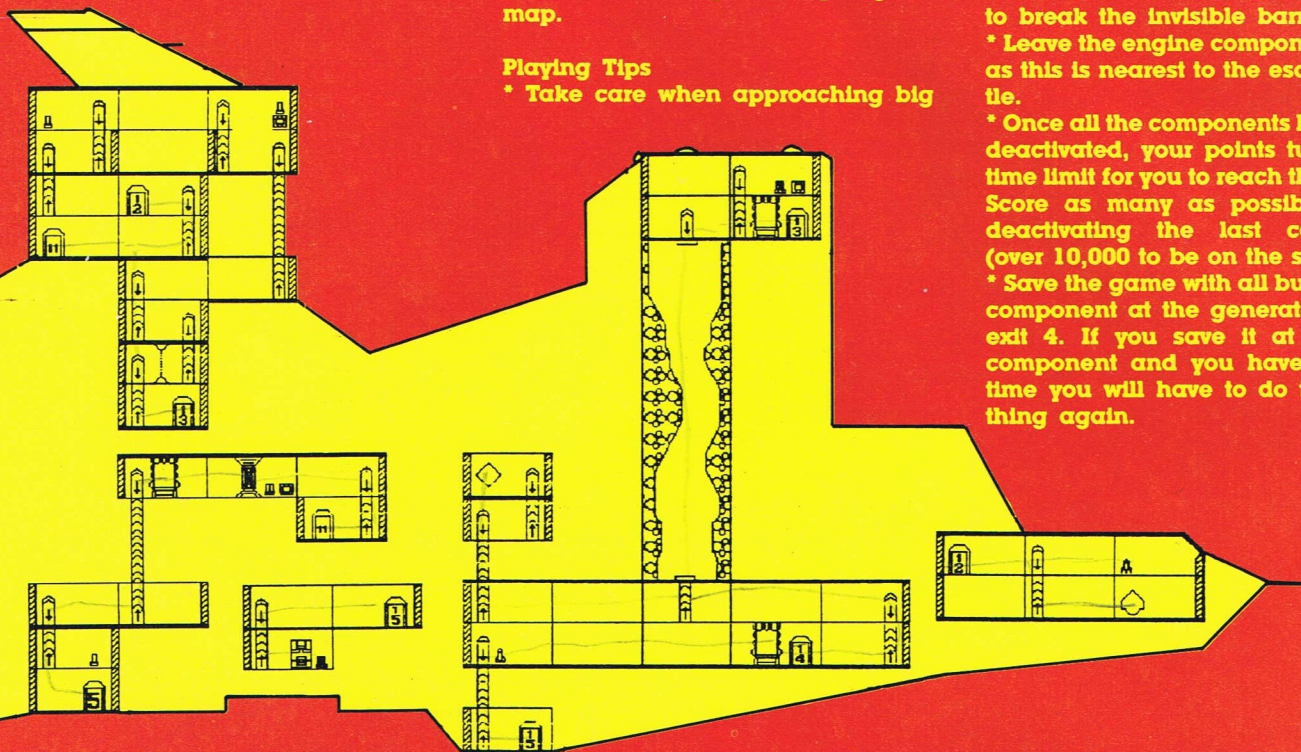
- * Only the bazooka will break down the big visible barrier.

- * Shoot the control box with the pistol to break the invisible barrier.

- * Leave the engine component to last as this is nearest to the escape shuttle.

- * Once all the components have been deactivated, your points turn into a time limit for you to reach the shuttle. Score as many as possible before deactivating the last component (over 10,000 to be on the safe side).

- * Save the game with all but the final component at the generator next to exit 4. If you save it at the final component and you have too little time you will have to do the whole thing again.



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The best DTP Programme on the Amiga by a very large amount. Not available yet but demonstrators are available on the old version which we have used for over 9 months. New version includes some features you would not believe or expect even on the mighty Mac.

PHONE FOR DETAILS & DEMONSTRATION

Starboard 2 — probably the best memory upgrade for the Amiga series

Why do we think the Starboard is the best memory board on the Amiga? Well, really you can use it on all 3 models of the Amiga (there is an A500 and an A1000 version of the Starboard and you can get an A2000 adaptor for either version if you upgrade). You can have versions with 0K, 512K, 1MB or 2MB RAM, and each version is upgradable so you can use your own RAM chips if you like. There is also the option to use a 68881 maths co-processor, partly checked RAM, 'slicky' RAM-Disc and onboard clock and there is also a hard disc controller to fit inside the Starboard at under £100 due out soon. You can also have up to 4 Starboards connected together to make up to 9MB Total RAM. This is just a brief description of what the Starboard can do, phone or write for more details and pricing.

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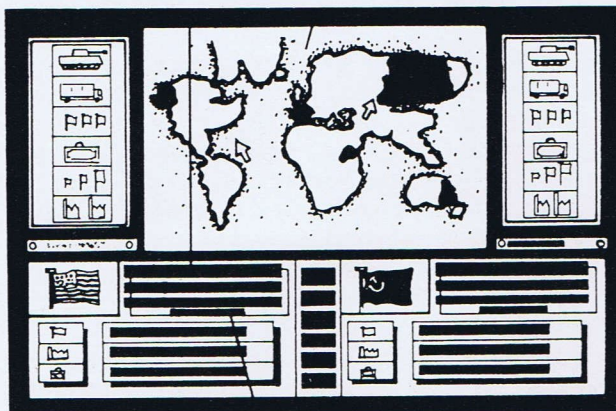
POWER STRUGGLE

PSS

World domination is a tricky business – ask Ronald Reagan or Mikhail Gorbachov. It is hard to know who your friends are in a world of shifting alliances and vested interests. Yesterday's enemy will probably be tomorrow's friend – or vice versa. So it is comforting that would-be dictators can test their mettle in a bloodless way, committing acts of aggression on a computer battlefield where the only casualty is likely to be their blood pressure!

This simulation gives you the chance to control either the East or West power blocks, so there can be no accusations of the game being partisan – which is unfortunately not true of most simulations where you have no choice but to be Uncle Sam's puppet and down those Commie MiGs.

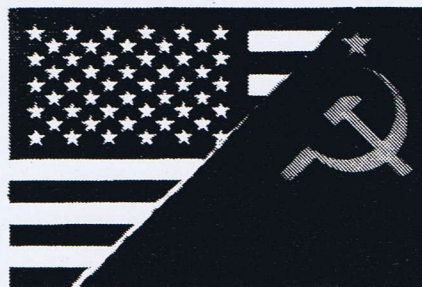
The game is controlled from just one screen, which shows a map of the world, its countries colour-coded into their political leanings – either red or green, the neutral countries shown as white. There is a set political status map, or a random one in which the usually neutral countries are assigned a particular leaning to make your global diplomacy more interesting.



Moves are taken in timed periods, when it is possible to issue commands to the countries under your influence. These range from building factories, attacking a neighbour, putting political pressure on a neutral country, supplying another country, defence build-up or strengthening your armies. You may only issue one command to a country per move.

Power Struggle is totally mouse controlled, with a click on any country giving its current status so you can find out what devious tricks the opposition are up to. It is essential to monitor the shifting balance of 'neutral' countries to make any headway.

One player can compete with the computer, which is a single-minded opponent and would obviously make an excellent world leader, or two can play, one using the mouse and the other a joystick. In two player mode, choices can be made simultaneously on the map and



the lengthy period in which moves may be made can be cut short by pressing the space bar. Decisions affecting any number of countries can be made within the period allowed for moves. And if you have second thoughts about an action, you simply issue a different command and over-ride it. After each move is completed the political face of the map is re-drawn – often with surprising results; one minute you can be invading Mexico, the next you find Canada has fallen to the Eastern Block. At this stage you decide to continue the game to its conclusion – and that is when one faction controls the entire globe – save the position to a data disk (the game itself is fully protected) or quit.

PSS say the game is not intended as a high brow simulation but as a game of fun. Really it is neither. If a real-life simulation is what you are after you will be disappointed and for the rest of us, I feel the fun will soon flicker away. There just is not enough to make the game compulsive. By keeping control so simplistic, PSS have managed to make a program which seasoned wargamers will find insultingly restrictive and which will leave gamers wondering why nothing moves on the screen except their mouse pointer.

If you intend dabbling in war games, then this may possibly be the stuff to wean your interest, otherwise it is another promising idea wasted.

P.L.

Price: £14.99

SEVEN CITIES OF GOLD

Andy Moss goes on an odyssey of discovery and conquest with EA's "Seven Cities of Gold"

Talk to any sailor who sailed between 1492 and 1540 and he will tell you that there was nothing that could beat those great days. It was after all an age of exploration and discovery, a time when brave men ventured forth into the unknown, in the cause of knowledge and fame. Great continents were discovered and mighty cities founded and for what? OK, we wouldn't have a World Cup for one thing, no Camaroons team to beat 10-0 and we wouldn't have an Amiga to play with if America had not been discovered! But just what was it that drove those brave heroes to risk life and limb to bring us the equivalent of a global A-Z for our back pockets?

The answers can be found in Electronic Arts latest Amiga conversion *The Seven Cities of Gold*. This is truly a masterful piece of software, that really brings home to you what it must have been like to be a Columbus or a Cook. Your role is as the leader of an expedition which is about to set sail on a voyage of discovery. You are docked at the port of Spain and before setting sail you need to stock up with food, water, supplies and men (it is important to get the right ratio of men/food for a successful trip). When you have done this, you set sail (using the mouse for direction) and can travel in any direction, although for novices it is advisable to go in a westerly direction first in order to discover a very interesting island. This part of the game is mostly just sea (obviously) and you can get quite lost if you just aimlessly wander around, it is better to set a course

quite a few goods for trading with the natives) and begin exploring your newly found land. Finding a river is useful as travel on water is quicker than walking and coming across native villages is handy for getting information about the area and where potential treasures may be waiting for you.

After some time, you will want to return to your home port and it is here that you take stock of all that has happened. Go to court to gain rewards from the Crown, go home for a status report and to view a map of your discoveries, or visit the pub to save the game and back to the outfitters for more men and supplies.

There are numerous ranks to achieve, the highest being Viceroy, which is granted to those who receive more than a 50% rating by the year 1540, after all 60 years is quite long enough for any would be explorer.

Where *Seven Cities of Gold* really comes into its own, is on the advanced level, where you can create a completely original world for exploring, instead of the historic one already supplied. It is a random creation which is different each time but not drawn willy nilly, no sir, it always conforms to geological and cultural principles built into the coding.

This lends a whole new dimension to the game once you have fully explored the historical map. Forts and missions can be established anywhere you trade or conquer but careful analysis of the soldier/villager ratio is needed before leaving them to it, otherwise you could find yourself losing out to revolutions and that is not a good thing after all the hard work it took to set it all up in the first place.

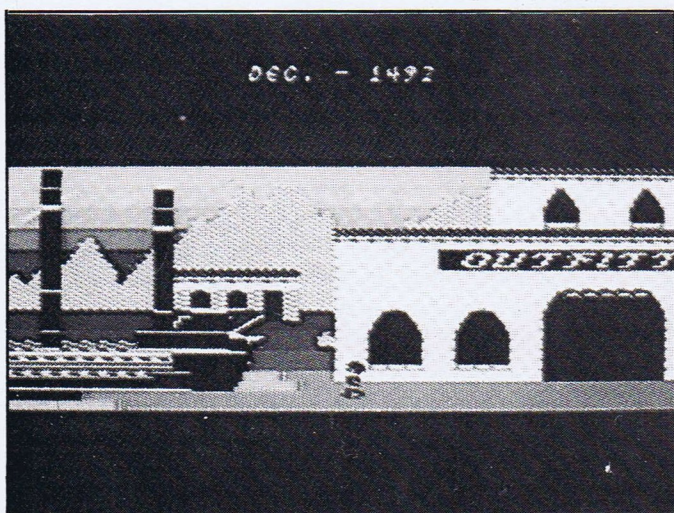
As the name of the game implies, somewhere out there, there are seven fabulously wealthy cities, all you have to do is find them.

If there is one bad point about the game it is that the graphics are almost identical to the original 64 version, which whilst being excellent for the 8 bit machine should really have been something else on 16 bit. That said, it must be pointed out that the sheer size and atmosphere of the game more than compensates for less than state of the art graphics. You just don't need them, because *Seven Cities of Gold* must be experienced rather than looked at for prettiness.

This release was soon followed up by *Heart of Africa* on 8 bit which chronicled the complete exploration of Africa. If it is coming out on Amiga, I for one can't wait, but *Seven Cities* will more than compensate in the mean time.

A.M.

Price:



and stick to it. On finding land, you sail in close, press the mouse button and disembark. Now comes decision time, how many men do you take with you and how many have to stay behind guarding the ship. You transfer goods, men and food, (you need

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AMIGA CALLING

New Bulletin Boards are appearing on an almost daily basis. Stuart Williams gives some advice to the uninitiated.

Many people thinking of entering the world of communications for the first time decide to do so because a commercial service has attracted their attention but there is an interesting alternative to Prestel/Micronet, Compunet, or Email services, for the hobbyist at least: the Bulletin Boards.

What is a Bulletin Board System (BBS for short)? Well, like its namesake, it's a place to pin up messages, advertise events, etc, but also it is a great forum for information exchange between thousands of hobbyists, a chance to contact people from all over the world, make new friends and access stores of Public Domain software!

The BBS, which originated in the USA, has now become well-established in Great Britain and many other parts of the world. When you log on to one, you will see something akin to a commercial electronic mail service but considerably more friendly, both in atmosphere and often in ease of use.

'The use of a single user system means you may often find your favourite BBS engaged'

The majority of these small systems use scrolling text-based software (although there are a few Viewdata style boards using the Prestel type paged graphics system), running on a single microcomputer. Generally they have at least 20 megabytes of hard disk storage and one telephone line. The use of a single user system means you may often find your favourite BBS engaged if it is a popular one; fortunately there are many more to choose from and you should find several within your local area if you live in a reasonably populous part of the country; London and Birmingham are particularly well served.

The Bulletin Board is normally organised into a number of separate areas; messaging areas, software download

databases, utilities, bulletins and information. The message areas are the most important feature and normally have a general area and several SIGs (Special Interest Groups), which cover particular topics of interest, such as types of computer, software, amateur radio, electronics, science fiction, astronomy, modelling, in fact anything under the sun, though the majority of topics are computer related.

The system is easy to use and normally operates via simple menus. Some boards, however, will let you get down to the operating system itself – not that the idea of using a CLI while calling long distance appeals to me! When you log on for the first time, you will be expected to 'register' as a member of the board. You would be wise to register, as your access privileges will improve.

'You MUST use a different password on every BBS you use, for security.'

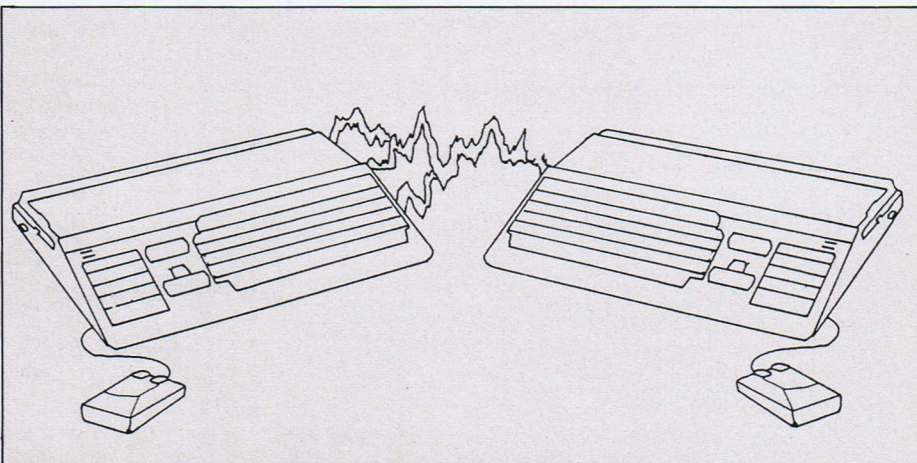
You will also be asked to choose a personal password so that you can identify yourself and prevent anyone else from pretending to be you and causing trouble on the board; you MUST use a

different password on every BBS you use, for security. You are unlikely to encounter an unscrupulous Sysop (System Operator) but it has been known (rarely) for passwords to be 'cracked' by idiots 'playing hacker' who then run riot. Use of multiple passwords alleviates this potential problem.

Remember that although the majority of BBS are operated for you free of charge, that does not give you a right to abuse them! Do not drop carrier without using the logging off procedure on the board, as this can cause the system to 'hang' occasionally, temporarily preventing access to other users. Do not hog the download areas – not only does this block the board for other users but you should be using the BBS for its true purpose, communication! If you want to download more than the odd program, then it will be cheaper and more courteous, to contact the Sysop, as he will probably be prepared to copy programs onto disk for you for a small fee.

Bear in mind that if you do use the download facilities, it is only good manners to upload a program occasionally – contributions of this kind (of Public Domain software, not commercial programs!) will keep the whole system going and put you in the Sysop's good books.

The makeup and 'feel' of a BBS can



continued on page 45

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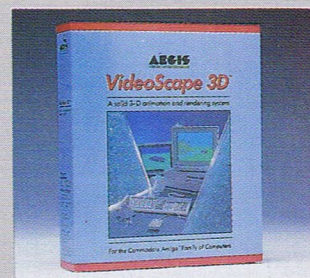
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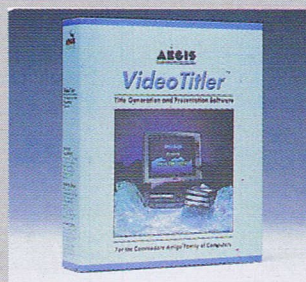
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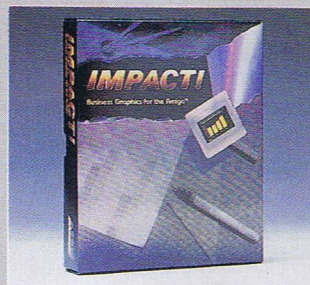
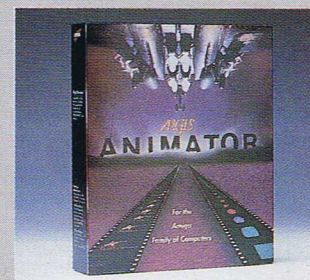
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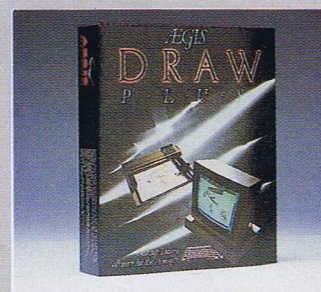
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AAARGH!

Melbourne House

Melbourne House's latest conversion from the Arcadia coin-op range is *Aaargh!* You get the chance of becoming a huge mean movie monster, smashing up everything on your quest for the precious golden eggs. Now there's an unproductive way of spending a few hours, you might think. You could be wrong. Aggression of this kind on screen could save a few inter-family bust-ups, perhaps!

Aaargh! obviously takes most of its ideas from *Rampage*, an immediately appealing coin-op with a suspicion of short term playability. Two monsters star in the game: the ogre, a blundering giant with one eye and a single horn, and the dragon with his green scaly skin. Both have the gift of fire-breathing. Each location is set on a single screen, usually some sort of village. Buildings can be smashed up by continuous thumping or burnt down with your fiery breath.

With the whole place in chaos, hysterical natives scurry about and provide a tasty bite. Bashing houses and eating helpless humans would be too

"Groans, thuds and dramatic music are all very well done and the graphics are just as good."

easy, so they defend themselves with a mobile catapult. Insects and birds bite and sting you unless you frazzle them first. The odd tasty looking taco or pizza slice is just waiting to be munched. Finding the egg takes you to the second part of the game. Here you fight the other monster for the egg; hardly the most playable beat 'em up but it certainly does add a bit of variety.



Each screen is significantly different from the last, and in general they are very well detailed. Where the game goes downhill is in its clumsy controls. Various positions of joystick and fire button control the different movements which would be fair enough if the game responded as it should. I found myself getting stuck between buildings and simply standing still when I should have been smacking the hell out of a temple. These annoying controls spoil what would otherwise have been a very decent *Rampage* variant.

"though I found the game just too fiddly to be really enjoyable."

Although there are two monsters featured in the game, only one can play at once. A two or even three player option would have definitely boosted *Aaargh!*'s playability.

Both sound and graphics give a highly suitable pre-historic monster film atmosphere. Groans, thuds and dramatic music are all very well done and the graphics are just as good. *Aaargh!* may have a little more long term appeal than a direct *Rampage* clone due to its few but varied screens, but is nevertheless extremely playable. All that destruction gives you a pleasing feeling of power and it is nice to play the baddie for a change. If you can tolerate the controls, *Aaargh!* will make a very satisfying smash-up session, though I found the game just too fiddly to be really enjoyable.

B.V.

Graphics: 8
Sound: 8
Playability: 6
Value: 6
Price: £19.95

The Three Stooges

Mirrorsoft

After a long break from the limelight, Cinemaware have returned with The Three Stooges, their latest 'interactive movie'. With graphics and sound digitised from a number of films it aims to create an authentic movie atmosphere combined with entertaining gameplay.

True to the style of those classic comedy films, the game features a villain, a helpless granny and the stooges themselves. Mr Fleeceam is going to close down old Ma's orphanage if her debts aren't paid by the end of the month. The Stooges couldn't bear to see this happen and so set out to



raise money to pay back the old meany. A number of wacky schemes have been thought up for you. Completing each sub-game awards you with a cash sum until the target is reached. All have been taken from various films including boxing and custard pie fights. As you would expect from Cinemaware, the graphics are amazing and the earful of sampled sounds could well raise the odd chuckle. Can the gameplay come up to these standards? Don't miss next month's issue and find out!

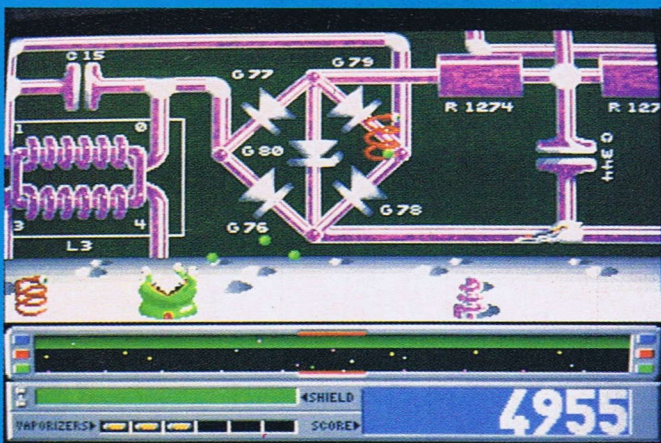
STARRAY

Logotron

If you want a fast, smooth pure shoot 'em up, StarRay could be just what you are looking for. If you want an original, thought provoking game, you may have to look elsewhere – or wait a long time the way that Amiga games are panning out these days.

StarRay was programmed by a German team calling themselves Hidden Treasures, who claim it to be the best arcade game yet to be written on the Amiga. It is definitely one of the most neatly programmed games yet to appear on the Amiga, but the gameplay? Which after all is the main reason you buy a game, right?

A great amount of effort has been put into the



programming of StarRay to disguise the fact that it is really an updated version of Defender, but you won't be fooled, will you? As in Defender, the player flies a ship at very high speeds across a horizontally scrolling landscape. Your job is to

"Doctor Who quality zaps and screeches, sound off with the style of an arcade machine"

protect a number of generators along the bottom of the screen which are the equivalent of Defender's humancoids. Small but deadly aliens float around, modifying all generators they can get their hands on, so that they can shoot back at you.

The most noticeable enhancement over Defender is the multi-layer parallax scrolling, giving the graphics a great deal more depth. Using the scanner at the bottom of the screen you can track down aliens and generators, most of which are fairly small and simple. Some excellent sampled sound effects add a lot to the game. Doctor Who quality zaps and screeches, sound off with all the style of an arcade machine, very well done. The loading music is also some of the best I have heard

with samples galore. It is of the quality to which all games houses should aspire.

Seven levels make up the game, with a number of attack waves needing to be wiped out between each. A substantial amount of variety in the levels certainly helps encourage progress. Entertainingly, they also introduce new aliens that act differently as well as having a new look. Flowing electricity and glowing eyes are a couple of the neat background effects. What StarRay lacks is something really fresh in the gameplay. In effect it is nothing but Defender with frills, and if you still like Defender, fine. You have got a better version here for your Amiga. Some larger graphics, a few more spectacular graphic effects or extra weaponry would have been a few welcome additions, but in its looks and sounds it lives up to Amiga standards. It is of course, easy to complain that 'We've seen it all before' and knock a game for its copycat gameplay. It is not so easy to come up with an original idea – as we see month after month. It just strikes us as a pity that so many good programmers do not fulfill their potential because they take what seems to be an easier way out. From the short run, it may pay but in the long run it can be counter productive. (Though Maynard Veynes, the well-known Cambridge based programmer always said 'In the long run we're all dead'!) Anyway, I am sure there are a lot of gamers who will get bags of exciting blasting from StarRay, but for me it is just a bit too limited.

S.V.

Graphics: 8
Sound: 9
Playability: 7
Value: 6
Price: £24.95

FIELD REPORTS

'There are several good boards already established and running on Amigas.'

Note carefully the operating hours of each board; some of the systems do not run 24 hours a day, usually because they

after setting up their systems! When you consider the price of Amigas and especially hard disks for them, this is not too surprising!

Abbreviations: V21=300 baud, V22=1200 baud, V23=1200/75 baud, V22bis=2400 baud, hrs=hours, ★=Amiga board.

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COMPUTING CAREERS

Have you mastered your micro? Would you like to move on and up to bigger things? How would a career in a mainframe environment suit you? Alastair Statham outlines the possibilities.

Personal computers at home and in the classroom have done much to improve the general computer literacy of many people. Although some may never graduate beyond loading and playing games, many people develop and polish skills ranging from word processors and spreadsheets, through simple basic programming, to the use of sophisticated programming techniques. It is extremely encouraging to see so many accomplished programmers still at school. Some may well decide to develop their interest into a full-time career and fill the tremendous skills gap the data processing industry has been suffering in recent times. The incredible growth of the industry has itself caused most of the recruiting problems. Although this article is written largely from U.K. experience, it appears that the same situation applies in all the developed countries.

Skilled staff are always in such great demand that the larger computer using

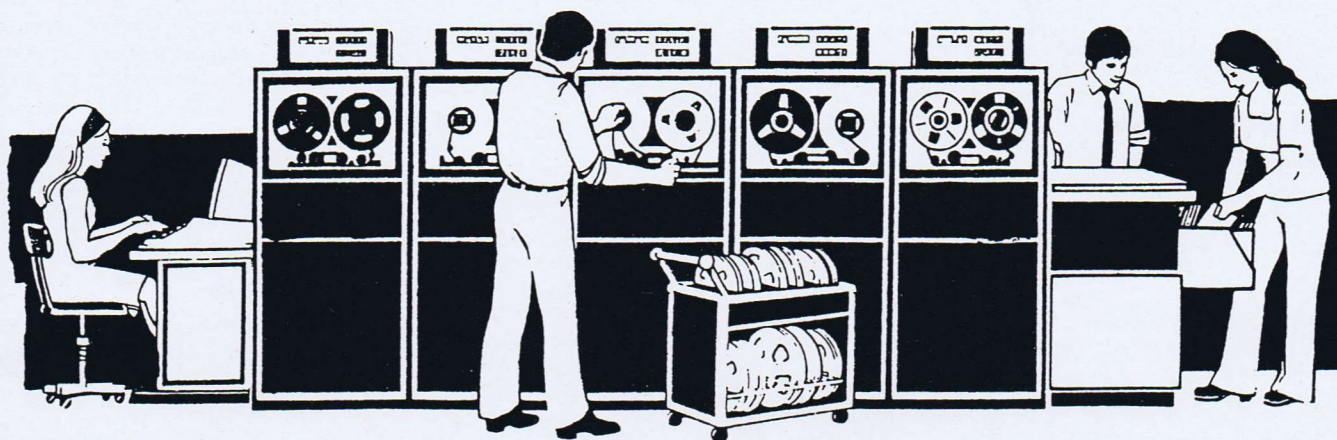
companies have to supplement their staffing levels by hiring comparatively large numbers of trainees. These are often recruited from universities and colleges in a process sometimes known as

'Larger computer using companies have to supplement their staffing levels by hiring comparatively large numbers of trainees'

'the milk-round'. During the milk-round the companies tour the country and present as glossy an image of themselves as they can to the students. The hope is, of course, that they convince the most promising students that they offer them the best choice of career. The companies then hold bulk interviews of the potential new staff to fill the trainee

slots for that period. Although most companies are looking for applicants with degrees some are also willing to take on A-level standard students who have achieved good grades. While there may be a shortage of skilled staff, the competition for trainee posts in prestigious companies can be fierce.

It may sound like you need a first-class honours degree, or better, to stand a chance but it never really seems to work out like that. Qualifications prove that the candidate can perform at a certain academic level but they do not give an accurate representation of the individual's aptitude for working in the data-processing industry. It is because most companies realise this that candidates with only A-levels are often given the opportunity to demonstrate their abilities to prospective employers. Most companies place a lot of faith in aptitude tests taken on the day of the interview. Some of the more socially aware employers



also support the Government training schemes to give access to even more young people who show an interest in the DP industry. It is not surprising to find a fair proportion of those on such schemes eventually being taken on the permanent staff as trainees.

Most trainees begin their careers as operators or programmers.

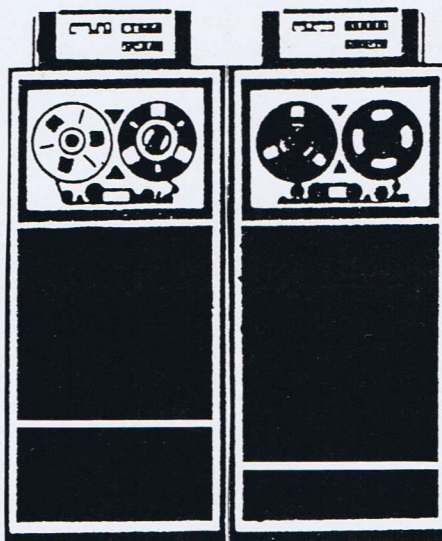
There are many different posts available but these provide the best basis from which to develop. Many of the other posts rely heavily on experience gained either as an operator or programmer and so are really suitable as career starting points.

Operators are the people who run the computers. This entails many different tasks. Some are relatively mundane like feeding a new box of paper to a printer that has run out, or mounting a tape on a

'Operators usually have the job of taking regular backups of user data in case of loss or accident'

tape-drive for a user of the system. A large amount of time is often spent watching a screen for messages sent to the operator requesting action. This screen is often referred to as the system console and is the main interface between the operator and the operating system. The operating system is the complex piece of software that manages the resources of the system and provides the facilities required to run user-programs.

As well as looking after the physical requirements of the computer facility the operator also has to run the operating system (or systems). Running the systems involves controlling the available



resources by issuing commands to the operating system usually using the system console. These 'operator commands' control such things as who has access to a particular tape-drive, which disks are available and to whom. They also control the system printers and the terminal network which provides access to the system by its users. Other commands alter the relative performance of users and fire off regular tasks required to support the day to day running of the system. Operators usually have the job of taking regular backups of user data in case of loss or accident. In some installations the operators can spend a great deal of time on the telephone handling queries from the users of the system. Some of these queries are simple questions that can be answered there and then, while others are related to equipment failures or errors in the software. When an equipment failure is believed to be the problem it often falls to the operator to arrange for a hardware engineer to come and fix the broken device. This is all a part of keeping the system running as smoothly as possible, the mission of all good operators.

'Programmers provide tools tailored to meet the needs of the user community'

While operators control the system's resources, programmers provide tools tailored to meet the needs of the user community. Many of these tools are bought-in software packages but even these require tailoring to the user's needs. Traditionally most programmers wrote in languages such as Cobol, Fortran or PL/1. Each language had a place in the wide range of applications run on typical company systems. Cobol was the

standard business language, while Fortran was more technically orientated. PL/1 was designed to provide the best of both worlds and largely achieves this objective. Over the last few years other languages such as 'C', APL, Pascal and various database and 4th generation languages have gained in popularity and their use is steadily increasing. In large installations the design of application systems is carried out by systems analysts but some sites combine the roles. The main function of the programmer is to write code to perform the functions described in the program specifications drawn up by the systems analyst at system design time. Once the code has been written it must be thoroughly tested and debugged, both as it stands and together with the other pieces of code which make up the application in what is known as a 'suite test'. In some companies the programmers also have to document the programs while in others this function is performed by the systems analysts or even a team of technical writers.

Either way it is in the programmer's interest to write good, well-documented code as there is bound to be a time when

'In a professional programming environment you will find all manner of standards imposed on the way you work'

alterations need to be made to the way a program operates. This is often caused by changes in the user's requirements or shortcomings not catered for in the original design. Some sites find a sufficient number of alterations are made to warrant whole teams of support programmers, whose job it is to make these changes and correct any bugs found in the original code.

Many programmers enjoy the long-term development of new code while others find greater pleasure in the support role where each new problem is a short-lived challenge to be overcome and produces more immediate satisfaction. Whichever role you play, do not expect to find the same freedom enjoyed at home. In a professional programming environment you will find all manner of standards imposed on the way you work. These are necessary to ensure that when you are not available, other programmers can easily pick up the threads. Your BASIC or micro machine-code may have taught you some useful and lasting techniques but you must expect to learn a whole new bag of tricks if you become a professional. If all this sounds like it will suit you then don't be shy, come on in – the water is lovely – and very profitable.

A.S.



DR. T'S (KCS V1.6) MIDI SEQUENCER

Is it robust enough? Is it likely to suddenly crash? It can be daunting to trust their valuable data to a new program. Paul Andreas Overaa was so confident with Dr. T's new professional music package that he 'played' with it LIVE!

Until recently good quality Amiga MIDI/music software has been thin on the ground. The arrival of the Dr. T 'Keyboard Controlled Sequencer', the KCS version 1.6, is therefore particularly significant. The KCS is a 48 track MIDI sequencer program which enables you to record and edit MIDI information.

Dr. T's packages are highly regarded and the KCS already has both a substantial user base and a good reputation that one might have about porting this package to the Amiga is whether or not a suitably robust Amiga version would be produced.

The package comes as a single, copy protected disk and a well written manual that includes both tutorial and reference material. The manual assumes that you are familiar with the concept with MIDI and understand the principles of how notes and control information are transmitted as numbers which represent MIDI events. Jim Johnson and Emile Tobenfeld deserve much credit for the manual layout . . . it is well produced, covers the

functions as a 48 track 'MIDI tape recorder'. Recording and playback of MIDI data is trouble-free and the user can adjust such things as recording speed, input data quantizing, 'punch 'n'/cu/ 'count in' control, auto-loop recording and much more. The Track mode parameters are, from the users' point of view, both versatile and effective . . . a typical example of the thought that has gone into

"Even after the track data is merged into a sequence drum parts remain protected against transposition"

the package came to light as we experimented with various drum machines. Some machines, incidentally, sent MIDI clocks continuously, some only after the machine has been started. Usually one would opt for a true 'MIDI start event' but there were a couple of occasions when we wanted a 'start' to be the reception of the first MIDI clock. KCS allows you to control these types of parameters and of course also allows you to use either the internal clock or an external MIDI clock.

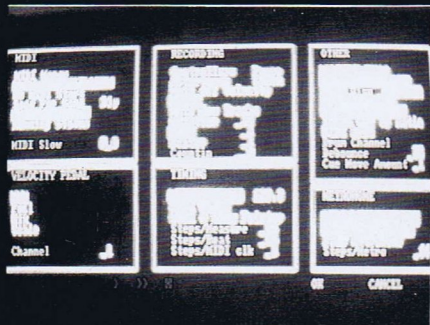
Whilst in Track mode a user has access to a large number of track editing facilities. These are quite simply superb – fully implemented cut and paste editing, pitch transposition, track shift, track splitting, note duration and velocity correction functions, time reversal, re-channelling, auto-correction, real time and step time editing, theme variation, inversion, user named tracks, text notes for a set of tracks, even a calculator to calculate differences between bars in terms of MIDI steps. You can also designate a particular MIDI channel as a 'drum channel' and thus protect your drum parts from transposition. Bass parts played on a synth can be tightened up with the

auto-correct/duration adjustment functions and the results really can be very good indeed – a great help if you are not primarily a keyboard player!

Once the individual tracks of a piece of music have been created they can be used to create a 'sequence'. Any combination of tracks can be used and the end result is effectively a sequence of MIDI data representing the merged track data. Sequences can be manipulated in the same way that track data is handled using the KCS's 'Open' mode. The facilities for sequence editing are similar to those existing for track editing and just as effective. Even after the track data is merged into a sequence drum parts remain protected against transposition on the specified drum channel – so you can change keys to your heart's content without problems.

Track and sequence modes recognize the existence of both MIDI and various non-MIDI events. Here are the seven basic MIDI events which are recognized: Note-On, Note-Off, Program Change, Control Change, After-Touch, Pitch Bend and 'Single Byte User defined events'. There are seventeen Non-MIDI event types and these enable you to do such things as incorporate time delays, tempo changes, pitch transposition effects and to include control data which controls the playing of other sequences. Single byte messages of any value can be included so even if you need to send some obscure MIDI message to a piece of equipment you will be able to do it with no trouble at all.

One of our favourite devices which used these ideas was this: We would start our songs with a 'COUNT IN' sequence which set the tempo, sent the required program change info down the MIDI line to set up the synthesizers etc. and then brought us in with a four beat count – great stuff, if you are contemplating any stagework. Control sequences



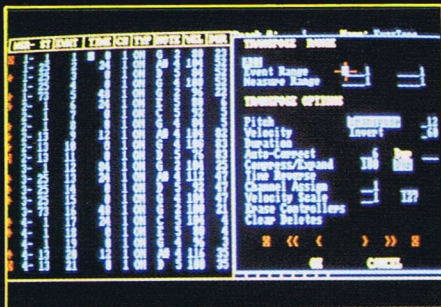
basic program operation extremely clearly and also contains chapters giving additional details for more advanced users, help on troubleshooting and applications notes for various specific musical instruments and equipment.

The KCS divides both logically and practically into three main divisions or 'modes'. In 'Track' mode the program

DR. T'S

can also be created which then supervise the playing of other sequences and this in practice is a very powerful facility although it takes a while to get used to the ideas.

'Song mode' is a conceptually simpler way to link sets of sequences together. Essentially you provide a list of sequences to be played, defining the tempo and transposition characteristics for each sequence involved. By choosing reason-



able names for a set of sequences, e.g. Count in, Intro, Verse, Chorus, End etc., you produce a song mode display which gives you a clear picture of the musical structure of your song. As it plays you are given a visual indication of which sequence is playing. We found the 'Song mode' both simple and very useful for linking sequences in this fashion.

You can hold sixteen separately named songs in memory – this should be sufficient for the average band or studio set – but if you think it is restrictive there are two solutions: Firstly songs can be merged so that a single song reference actually constitutes more than one song (each song in such a set could be given its own 'count in', tempo and MIDI set up commands). Secondly, if you have got a bit of spare RAM you can keep additional song sets in the RAM disk and load alternative song sets at lightning speed.

“you can keep additional, song sets in the RAM disk and load alternative song sets at lightning speed.”

KCS 1.6 has a lot of default parameters which may be changed to suit particular circumstances. Clicking on a 'set up' option provides a page detailing all the major current values. From this page you can select the internal or external clock, control Song Pointer, Clock out facilities and can opt for running status (this can help avoid MIDI line 'clogging' on fast or busy passages). You can also control the audio and visual metronomes, velocity pedal parameters and several other MIDI parameters in-

cluding a 'MIDI slow' function which can put enforced gaps into the data transfer. (This latter function has all sorts of potential uses e.g. KCS can be used to record System exclusive data . . . when sending such data back from the sequencer some instruments may appreciate a bit of a 'breather' just after being told that such data is going to be received.)

As well as being straightforward to alter, a given arrangement of current settings may be saved in an 'environment file' at any time. Such files can rapidly re-instate a particular set of conditions so this is a very useful facility to have in a recording studio environment!

The documentation points out that the KCS supports a 'multiprogram' environment enabling other Dr. T compatible programs to co-exist in memory. To be honest this may be necessary on other machines but such facilities are already an integral part of the Amiga so we are not really sure how useful or in what way it extends the KCS facilities as far as the



Amiga is concerned.

The manual gives no technical details of the MPE and since we did not have other Dr. T programs available we were unable to experiment in this area. The multi-tasking nature of the Amiga is quite capable of upsetting ANY programs timing calculations so . . . to avoid timing difficulties it would seem sensible NOT to try to use the KCS sequencer whilst RUNNING other processor intensive programs (that includes loading large amounts of data from disk as a CLI background task) . . . Keep other utilities in memory (but sleeping) and switch between them as required. We did incidentally, hit one or two timing snags when reading data directly into the KCS sequencer from some old eight track Aegis Sonix files playing on a second machine. These were full drum/bass/keyboard arrangements transmitted at normal playing speed as MIDI data without any MIDI clock info. It is not the ideal way to perform such a transfer and we decided that pumping large amounts of MIDI data into a sequencer without clock data was both unwise and perhaps a little unfair.

Our conclusions . . . We already know that there is a lot of good software available from the 'Dr. T' team and that

there is more on the way. As it spreads to the Amiga this, coupled with a contented and growing user base, makes Dr. T products a good investment. The KCS sequencer began on the Commodore 64/128 and has matured into a robust package containing facilities which will please both amateur and professional alike. It is now available on the Amiga, the Atari ST and the Macintosh and this in itself is an advantage which should not be underestimated. You may well find KCS in one form or another in the studio and even on a different machine you will instantly feel at home with it.

The Amiga implementation by David Silver is very very good and it is ROBUST. After a couple of weeks with KCS 1.6 we were so confident that we took it out and used it for live gigs . . . and that is about as good a definition of confidence in a MIDI package as you will find.

Now for the mercenary stuff . . . priced at two hundred and twenty five pounds the package is relatively expensive. Is it worth it? If you are a serious amateur or professional musician who needs a reliable Amiga based MIDI package then the answer is a simple YES. Without question the KCS version 1.6 sequencer is simply the best Amiga/MIDI sequencer package we have seen at the present time and is worth every penny of its selling price – and more!

The only potential problem area stems from the fact that the program is copy protected and current Dr. T policy allows only ONE back up copy per user. Profes-

“After a couple of weeks with KCS 1.6 we were so confident that we took it out and used it for live gigs . . .”

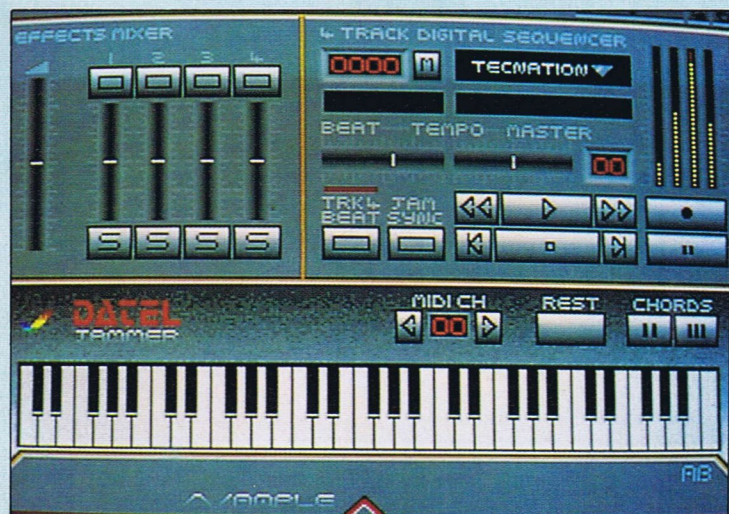
sional and/or data intensive use of any program requires a rather pessimistic attitude towards program and data back-up to be safe. Disks get stolen, lost and sometimes even trodden on. I would expect all serious users to keep, at different locations, at least one master disk and two working copies available at all times. Please Dr. T give potential serious users a sporting change . . . we have GOT to be pessimists . . . so two back-up copies should be the norm!!

P.A.O.

Price: KCS 1.6 £225.00 – Editors £115.00.

Contact: MCM XCIX, 9 Hatton Street, London NW8 – 01-724 4104 or 01-258 3454.

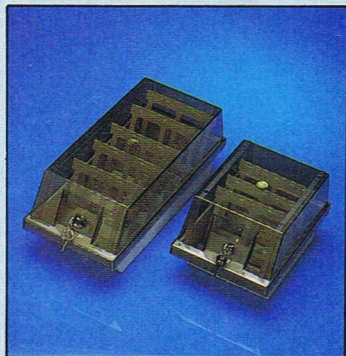
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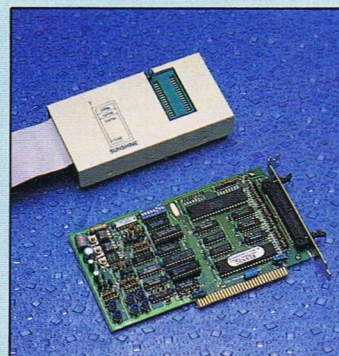


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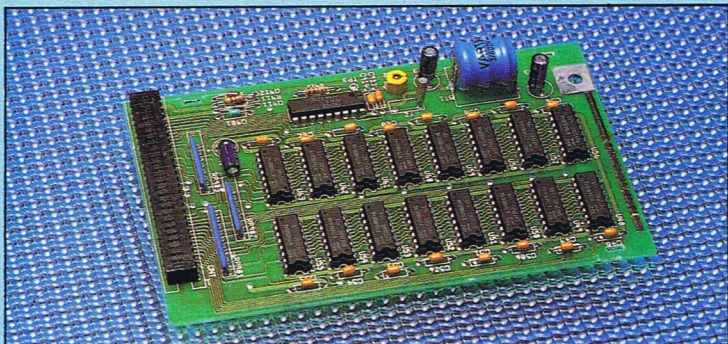
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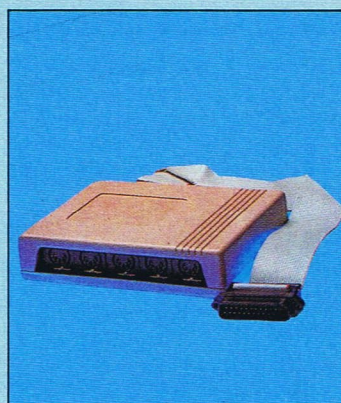


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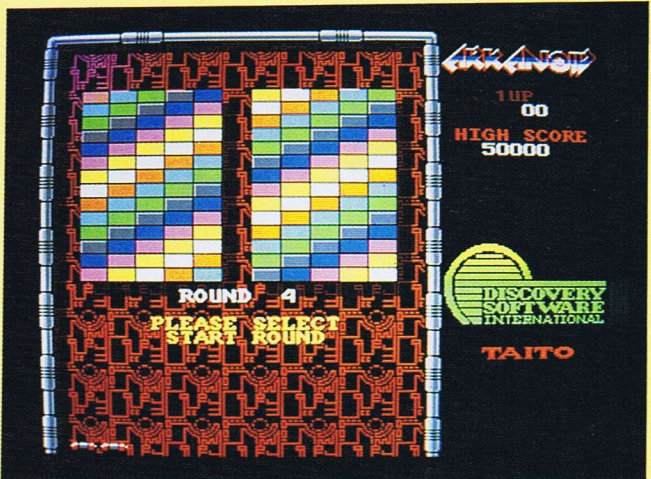
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64 TO AMIGA

As the migration from 8 bit to 16 bit continues, the means of solving the problem of transferring important data between 64 and Amiga is clearly required. David Pye offers a simple ASCII-based solution.

Commodore hailed the Amiga as the ultimate upgrade from the 64 and many of the richer 64 owners have moved over to the new machine attracted by its superior features. Now, unlike the Commodore 128 which cleverly allowed upgrading 64 users to carry on using their 64 software, the Amiga is totally different and incompatible in many ways. This, of course, will come as no surprise to anyone who has followed the progress of computer manufacturers over the years. However, to be fair there are very good reasons why the 16 bit WIMP environment of the Amiga cannot really be compared to the old 64.

Like many others I have been bashing away on the keyboard of my 64 for several years now and have built up a large collection of word processor and database files and a large mathematical program which access over 100 text files for Astrological character analysis. The problem was "How do you get all that information into a new machine without typing it all back in". Many readers, I am sure, will emphathise with this situation.

Americans, who have had the Amiga longer, have gone some way to solving this by introducing a 64 Emulator program and hardware which allows 64 software to be run on the Amiga and allows data to be loaded off a 64 drive and saved onto an Amiga disk. The Emulator costs around £70 and as most stateside 64 users have disk drives, there is no provision for cassette users.

A simpler, cheaper and more educational way, assuming you still have access to a 64 and disk drive, is to transport data direct from your old 64 to the Amiga via the RS232 port in the rear of the Amiga. This would be all very fine if the 64 had a RS232 port as well. Unfortunately it has not, or at least we can not see one anywhere. The 64's ROM Kernal does support RS232 but only in a non-standard low voltage format. Nevertheless it can be accessed from the user port. For around £20-30 you can purch-

ase a cable that will allow a direct link from the 64 to the Amiga. There are several on the market, I used the York Electronic Research model which performed very well.

Before we can start sending data, it has to be in a form that both computers can understand. This is cleverly achieved by sending data in its ASCII form, the American Standard System for manipulating characters as numbers. The letter "A" is sent as decimal 65 and "B" as a decimal 66 etc. Sounds fine but unfortunately the ASCII standard is not as standard on some computers as it is on others and Commodore are no exception. The problem lies in the dual character set on the 64 which is flipped from upper to lower case by pressing the shift and Commodore keys simultaneously. This means that on the 64 the ASCII number for "A" is the same as "a" which is 65 but if you use the shift key to select an "A" while in lower case mode it has an ASCII number of 126. The unsuspecting Amiga will now know this as it believes an "A" to be 65, an "a" to be 97 and numbers over 127 are reserved for foreign characters. This only really becomes a problem when your files use lower case. The easiest way around it is to reach each character before it is sent over and correct it if necessary and this is what program 1 does in the 64. All these ASCII codes are listed in the Appendix at the back of the Amiga and 64's manuals.

PROGRAM LISTINGS

Program 1 for the 64 first opens a command line and sets the output type and speed of transfer. A file to the Disk is opened and data taken character by character, each character is checked, corrected and printed to the screen before being sent down the line. Program 2 for the Amiga opens an input line from RS232, sets the rate as the 64 then picks up each character, printing them to the screen, then saving them to a sequential disk file.

TRANSFER PROCEDURE

Turn on Amiga, load WB, select Preferences and set up Serial Port to 1 stop bit, 8 data bits, 300 baud, no parity, full duplex, handshaking RTS/CTS, load Basic, load Program 2.

Turn on 64 and load Program 1, type into the data statements the name of the files you wish to transfer then place the disk containing those programs in the 64's drive.

Run program two on the Amiga, system will request WB disk to set up Serial port. Type in the destination disk name and/or file name.

Type Run on the 64. Each file selected in the data statements will be printed to the screen and sent to the Amiga which will also print to the screen then save to disk under the original file name.

The transfer rate is slow at 300 baud and can be speeded up but checking each character takes time so to transfer a 64 disk full of files can take hours. The transfer worked perfectly for me every time without any characters undergoing corruption. For cassette users there is no reason why the program cannot be modified to take data sequentially off a cassette recorder instead of a disk.

PROGRAM TRANSFER

64 basic programs must be converted to a sequential file before transfer by loading as usual then saving with the command: OPEN 8,8,8,"0:filename, SW,W" CMD8:LIST. When loaded type CLSOE 8 Amiga basic will run quite happily with line numbers (see program 2) and will accept nearly all the 64 basic commands except "π" which is converted to "PI" and file handling commands which tend to be simpler in Amiga basic. There is no CMD command in Amiga Basic and printing to the printer and the screen alternatively can be a headache involving cumbersome PRINT# Commands.

64 basic allows commands to be "bunched up" on a line so a "fors=1to10" will run fine on the 64 but Amiga Basic likes a

continued on page 70

QUAD

Software sprites or Blitter Objects in assembler? Giulio Zicchi reveals all.

This month we are going to take a look at Blitter Objects, or Bobs. Most of you will know them as 'software sprites' but in the case of the Amiga you will be pleased to know that there are a collection of routines in the graphics library which make the movement, animation and drawing of Bobs into the display relatively easy.

Bobs differ from hardware sprites in that they are actually part of the background display. The destination area of the screen must first be saved into an area of memory as large as the Bob itself and then the Bob may be drawn into the background. Before it can be moved, the background must be replaced and then the whole process may be repeated. What makes this simple on the Amiga is the blitter. From a programming point of view, we must first define our Bob, then insert the relevant pointers into a VSprite structure and a Bob structure. As usual I will 'cop out' here and say... consult the relevant reference guide for a more complete discussion of the subject. Though, if you are at all serious about programming the Amiga then you really **MUST** buy the Reference Manuals, space limitations here prevent a more detailed discussion.

Turning now to the listing you will see

that a single Screen is opened up and the lone Bob is drawn into this screen. Be warned that if you intend to draw many Bobs or even large ones, you will need to 'double buffer' the display area in order to prevent flicker. Double buffering is simply the technique of providing two display areas and drawing into one whilst displaying the other.

Chip memory is allocated for the size of our Bob which is one word (Bob width is always rounded up to the nearest word) by sixteen lines by two planes deep. Data must be in contiguous memory to correctly define a Bob i.e. plane one data followed immediately by plane two data etc.

All the examples in this series were written in 68000 assembly language using Devpac Amiga from HiSoft. Consult your assembler manual to reconcile the differences in directives which should vary little from one make to another.

The Bob data is copied into this allocated memory and then a pointer to it is inserted into the relevant structure. This data is followed by the save buffer and then the collision mask. All these fields must reside in 'chip' memory in order for the blitter to access them.

The system keeps track of all the current GELS, or Graphic ElementS in a structure called a GELSINFO structure. To initialise this structure we provide a dummy VSprite structure which lies at the head of the Gelsinfo structure and a dummy VSprite structure which lies at the tail. Now, when we add our Bob(s), the system routines automatically insert them in the correct place. Repeated calls to SortGList and DrawGList will cause the Amiga to sort the Bobs into the correct drawing order and then draw them into the relevant bit map.

The example has been kept as short as necessary to provide enough information to whet your appetites concerning Bobs on the Amiga. Adding further Bobs is as simple as copying the VSprite and Bob structures, inserting the relevant pointers and calling InitMasks and AddBob the relevant number of times (which may be done in a loop). The program runs on a timer since opening up a Window to obtain a message port for correct termination would have increased the size of the listing.

Try changing the Amount words to speed the Bob up and watch how smoothly the Amiga can move these 'software sprites' around. That's all for this month - happy hacking. **G.Z.**

```

OPT      C-,D+
INCDIR   "SYS:INCLUDE/"
INCLUDE  GRAPHICS/GELS.I
INCLUDE  GRAPHICS/GRAPHICS_LIB.I
INCLUDE  INTUITION/INTUITION.I
INCLUDE  INTUITION/INTUITION_LIB.I
INCLUDE  EXEC/EXEC_LIB.I
INCLUDE  EXEC/MEMORY.I

NULL      EQU      0
MEMTYPE   EQU      MEMF_CHIP+MEMF_CLEAR
BOB_WIDTH EQU      1
BOB_HEIGHT EQU     16
BOB_DEPTH EQU      2
MEM_SIZE  EQU      512

LEA       INTLIB,A1          ; Open relevant libraries
MOVEQ     #$00,D0
CALLEXEC          OPENLIBRARY
TST       D0
BEQ       ERROR
MOVE.L    D0,_INTUITIONBASE ; and store pointers
LEA       GFXLIB,A1
MOVEQ     #$00,D0
CALLEXEC          OPENLIBRARY
TST       D0
BEQ       ERROR
MOVE.L    D0,_GFXBASE
LEA       NEWSCREEN,A0      ; Open screen
CALLINT          OPENSREEN
TST       D0
BEQ       ERROR
MOVE.L    D0,SCREEN_PTR     ; Screen pointer

```

```

MOVE.L    D0,A0
ADD.L     #SC_RASTPORT,A0   ; Offset to rastport
MOVE.L    A0,RASTPORT      ; Stored
MOVE.L    D0,A0
ADD.L     #SC_VIEWPORT,A0  ; Claim view pointer
LEA       PALETTE,A1
MOVE.W    #NUMCOLS,D0      ; Number of colours
CALLGRAF          LOADRGB4
MOVE.L    #MEM_SIZE,D0     ; Set colour palette
MOVE.L    #MEMTYPE,D1      ; Claim enough 'chip'
CALLEXEC          ALLOCMEM  ; memory for Bob and
                             ; save buffer
TST       D0
BEQ       SHUTSCREEN       ; Allocmem successful ?
MOVE.L    D0,MEMBASE       ; Yes - then store

pointer
LEA       MY_VSPRITE,A0
MOVE.L    D0,VS_IMAGEDATA(A0) ; Insert data pointer
ADD.L     #BOBWORDS*4,D0     ; plus bobsize
LEA       MY_BOB,A0
MOVE.L    D0,BOB_SAVEBUFFER(A0) ; Background save buffer
ADD.L     #BOBWORDS*4,D0     ; plus save buffer size
MOVE.L    D0,BOB_IMAGESHADOW(A0) ; plus save buffer size
LEA       MY_VSPRITE,A0
MOVE.L    D0,VS_COLLMASK(A0) ; Collmask shares buffer
LEA       SMILEY,A0         ; Now copy our Bob data
MOVE.L    MEMBASE,A1       ; into chip memory
MOVE.L    #BOBWORDS,D0

COPY_BOB
MOVE.W    (A0)+,(A1)+
DBRA      D0,COPY_BOB      ; Branch until done

LEA       DUMMY1,A0        ; Dummy for head
LEA       DUMMY2,A1        ; Dummy for tail
LEA       MY_GELSINFO,A2   ; My gi structure

```

```

CALLGRAF      INITGELS      ; Initialise
MOVE.L  RASTPORT,A0          ; Link to RP
MOVE.L  #MY_GELSINFO,RP_GELSINFO(A0)

LEA      MY_VSPRITE,A0       ; Mask maker
CALLGRAF      INITMASKS

LEA      MY_BOB,A0           ; Add my bob to
system
MOVE.L  RASTPORT,A1
CALLGRAF      ADDBOB

MOVE.L  RASTPORT,A1          ; Change to colour #5
MOVE.L  #505,D0
CALLGRAF      SETAPEN

MOVE.L  RASTPORT,A1          ; Draw rectangle
MOVE.L  #100,D0
MOVE.L  #50,D1
MOVE.L  #220,D2
MOVE.L  #150,D3
CALLGRAF      RECTFILL

DRAW_LOOP      ; This loop
MOVE.L  RASTPORT,A1          ; actually
CALLGRAF      SORTGLIST      ; sorts and draws

MOVE.L  RASTPORT,A1          ; the bobs into
MOVE.L  A1,A0                ; the RastPort
CALLGRAF      DRAWGLIST

WAIT  SUBQ    #501,TIMER
BMT     FREEUP
CALLGRAF      WAITTOF
BSR     BOUNCE          ; else bounce bob
BRA     DRAW_LOOP      ; and branch

FREEUP
MOVE.L  MEMBASE,A1
MOVE.L  #MEM_SIZE,D0
CALLEXEC      FREEMEM

SHUTSCREEN
MOVE.L  SCREEN_PTR,A0        ; Tidy up
CALLINT      CLOSESCREEN

ERROR  RTS

BOUNCE LEA     MY_VSPRITE,A0   ; Bounce routine
MOVE.W  VS_X(A0),D0           ; which claims X
CMP.W   #300,D0               ; and checks for
BHI     NEG                   ; limits
CMP.W   #10,D0
BHI     NONEG                  ; negating 'amount'
NEG.W   AMOUNTX               ; when necessary
NONEG   ADD.W  AMOUNTX,D0      ; before adding to
MOVE.W  D0,VS_X(A0)           ; current X
MOVE.W  VS_Y(A0),D0           ; Same for Y co-ord
CMP.W   #180,D0
BHI     NEG2
CMP.W   #10,D0
BHI     NONEG2
NEG2    NEG.W  AMOUNTY
NONEG2  ADD.W  AMOUNTY,D0
MOVE.W  D0,VS_Y(A0)
RTS

AMOUNTX      DC.W   $0004
AMOUNTY      DC.W   $0003

NEWSCREEN
DC.W   0,0      ; Screen XY origin
DC.W   320,200  ; Screen width,height
DC.W   3        ; Screen depth (number of bitplanes)
DC.B   7,1      ; Detail and block pens
DC.W   NULL     ; Display modes for this screen
DC.W   CUSTOMSCREEN ;screen type
DC.L   NULL     ; Pointer to default screen font
DC.L   SCREEN_TITLE ; Screen title!
DC.L   NULL     ; First in gadget list
DC.L   NULL     ; Pointer to custom BitMap structure
SCREEN_TITLE

```

```

DC.B   'Quad 6 - Bobs !!!',0
cnp 0,2

PALETTE
DC.W   $0000    ; Colour #0
DC.W   $056F    ; Colour #1
DC.W   $0B22    ; Colour #2
DC.W   $0FEE    ; Colour #3
DC.W   $000F    ; Colour #4
DC.W   $0F0F    ; Colour #5
DC.W   $00FF    ; Colour #6
DC.W   $0FFF    ; Colour #7

NUMCOLS      EQU    (*-PALETTE)/2

INTLIB        DC.B   "intuition.library",0
EVEN

_INTUITIONBASE DC.L   0

GFXLIB        DC.B   "graphics.library",0
EVEN

_GFXBASE      DC.L   0

SCREEN_PTR    DC.L   0

MEMBASE       DC.L   0

RASTPORT      DC.L   0

BLINE         DC.W   0

DUMMY1        DS.B   VS_SIZEOF
EVEN

DUMMY2        DS.B   VS_SIZEOF
EVEN

MY_GELSINFO    DS.B   GI_SIZEOF
EVEN

TIMER         DC.W   $0400

MY_VSPRITE
DC.L   0        ; NextVSprite
DC.L   0        ; PrevVSprite
DC.L   0        ; DrawPath
DC.L   0        ; ClearPath
DC.W   0        ; OldY
DC.W   0        ; OldX
DC.W   VSF_SAVEBACK+VSF_OVERLAY ; VSFlags
DC.W   40       ; Y
DC.W   80       ; X
DC.W   BOB_HEIGHT ; Height
DC.W   BOB_WIDTH  ; Width
DC.W   BOB_DEPTH  ; Depth
DC.W   0        ; MeMask
DC.W   0        ; HitMask
DC.L   0        ; ImageData
DC.L   BLINE     ; BorderLine
DC.L   0        ; CollMask
DC.L   0        ; SprColors
DC.L   MY_BOB    ; VSBob
DC.B   3        ; PlanePick
DC.B   0        ; PlaneOnOff
DC.W   0        ; SUserExt
EVEN

MY_BOB
DC.W   0        ; Flags
DC.L   0        ; SaveBuffer
DC.L   0        ; ImageShadow
DC.L   0        ; Before
DC.L   0        ; After
DC.L   MY_VSPRITE ; BobVSprite
DC.L   0        ; BobComp
DC.L   0        ; DBuffer

SMILEY
DC.W   $0000,$0000,$0000,$0000,$0C60,$0C60,$0C60
DC.W   $600C,$600C,$3018,$3018,$1C70,$0FE0,$0380
DC.W   $0000,$0000,$07C0,$1FF0,$3FF8,$7FFC,$7FFC
DC.W   $FFFE,$FFFE,$FFFE,$FFFE,$FFFE,$7FFC,$7FFC
DC.W   $3FF8,$1FF0,$07C0,$0000

BOBWORDS      EQU    (*-SMILEY)/2

```

Dos-2-Dos continued

ported you can use ? and #? to specify single or multiple arbitrary characters. The ? and * wild-cards provide a similar function in MS-DOS filename specifications. These wild-cards provide a useful means of copying groups of similarly named files in a single operation. Files copied from AmigaDOS retain their original time and date stamp, while files copied to AmigaDOS format are stamped with the time they were copied.

The COPY command allows two additional parameters; The -R option instructs D2D to replace any file that already exists on the destination drive. If -R is not specified DOS-2-DOS will prompt you before replacing any files.

This can be a very useful option when using the wild-card function copy large numbers of files. The other parameter is -A, which directs D2d to perform conversion of ASCII file line-endings. MS-DOS files have a carriage return and linefeed at the end of each line, while AmigaDOS text files have only a linefeed. Conversion strips out the carriage returns and also removes the high-order bits from each character to give Wordstar compatibility. Without the -A option DOS-2-DOS copies files as they stand and performs no translation whatever.

Having tried DOS-2-DOS on all sorts of MS-DOS files, I am extremely pleased with its performance. I have managed to

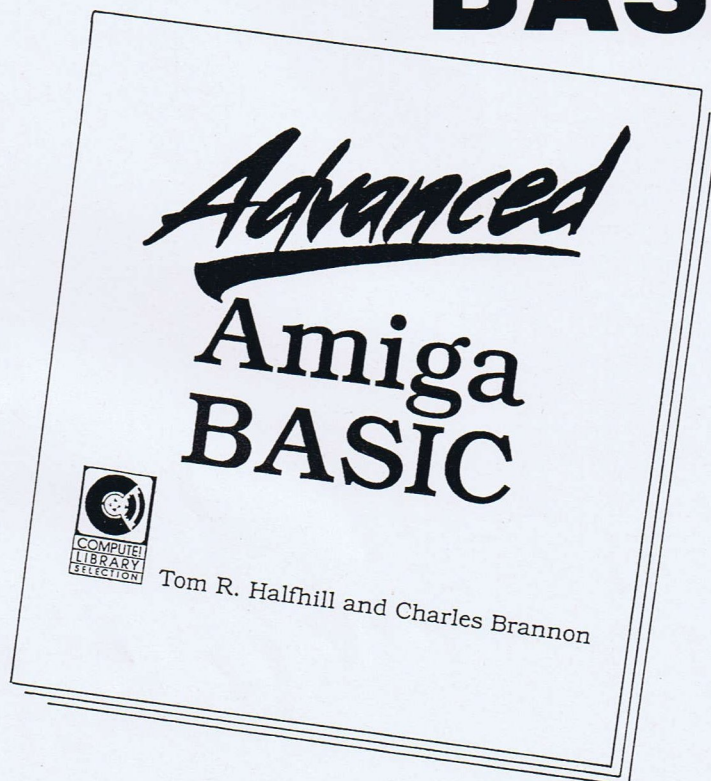
copy all manner of files and from my Amiga, using both 3.5 and 5.25-inch disks without any problems attributable to this package. If, like me, you have a need to process the same data on both your Amiga and an IBM/PC and the cost of an A2000 seems too high then DOS-2-DOS could well be your answer. Everything appears to work as it should and the package is both convenient and easy to use. I, for one, would now be lost without it.

A.S.

Price: £39.95

Contact: Burocare Computer Systems, 211 Kenton Road, Kenton, Harrow, Middlesex HA3 0HD. 01-907 3636.

ADVANCED AMIGA BASIC



As you would expect there are quite a few books coming onto the market that explain various parts of the Amiga's system and the BASIC interpreter is one of the prime targets. "Advanced Amiga BASIC" is from Computel Publications Inc. who have one of the highest reputations for publishing machine specific books. Advanced Amiga BASIC does not let this reputation down.

There are ten chapters, five appendices and an Index. This book is NOT intended as a 'teach yourself' Amiga BASIC – it does expect that you know, more or less, what you are doing. Rather than explain each command in depth, it takes you through a series of design concepts that you can apply to any programming that you do. Due to the complex nature of the BASIC and the facilities of the Amiga, several functions including graphics, sound and speech are discussed at length.

The ten chapters are:

1. Overview of Amiga BASIC

This sets out a few general notes on Amiga BASIC and its compatibility with other versions of BASIC. The fundamental control structures are de-

scribed and a few VERY USEFUL hints are given to help you speed up your BASIC programs.

2. Introduction to Amiga Graphics

3. Programming Graphics

4. Object Animation

Chapters 2, 3 and 4 are all concerned with the graphic system that the Amiga uses. To say that the subject is dealt with in depth is very much an understatement. There are dozens of examples and the descriptions of the techniques used are clearly presented.

5. Sound and Music

This chapter gives at length information about the sound system of the Amiga, describing the principles of waveform oriented sound. How the sounds are generated and the effect of various waveforms. The frequency of the normal music scales are mentioned and the general formula for the frequency of the even-tempered scale. Several example programs are presented.

6. Speech Synthesis

Chapter 6 gives information on the speech synthesis capacity of the Amiga, the normal Translate functions and the more specialized phoneme entry system.

7. Designing a User Interface

This chapter is not too long but it is one of the more important to the book, as it gives the programmer a lot of information/tips on how to interface to the end user, using the Amiga's Intuition interface. Menus are explained and as with every chapter in the book, there are plenty of example programs.

7. Programming Peripherals

There are lots of things in this chapter, all about how to make the Amiga talk to the outside world. The keyboard, printer and, most importantly, the disks are covered in depth with a great many of examples.

9. Library Calls

This is one of the particular strengths of the book. There are many functions that the Amiga can do that are not directly available from the BASIC environment. The answer to this is to interface the Amiga's Library calls into the BASIC system. This is a complex chapter, but it is very clearly explained with examples. However, it is NOT for the beginner, as the book title states, it is Advanced. This chapter is one of the few texts on the use of the library system and is well produced.

10. Putting it all together

This is a final look at the BASIC system and it is in the form of a well-commented program – a Mouse driven drawing package.

The Appendices cover a BASIC quick reference guide, ISO printer codes, memory management, Subprograms and the Amiga character set. The book is rounded off with a good index.

In conclusion, this book caters for the ADVANCED user of BASIC very well and is one of the few to do so. It should prove invaluable to the user who wants to employ AmigaBASIC as a serious programming environment.

A.E.

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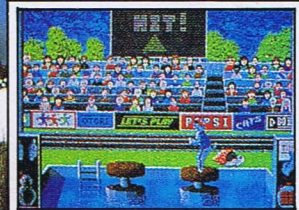
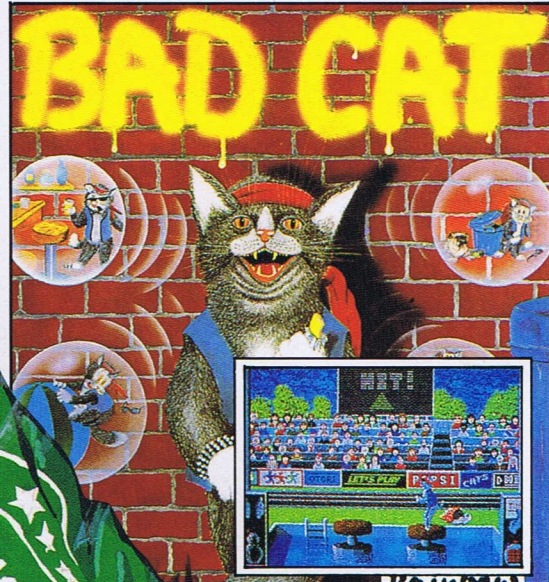
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DELUXE PRODUCTIONS

Deluxe . . . the name that spelled the first exciting graphics for the Amiga. Electronic Arts have now added a video animation package. Peter Lee puts you in the picture.

The Deluxe range of products has helped push Electronic Arts to the forefront of creativity on the Amiga. Well-known for top-quality programs, EA have built their reputation on software which has set standards and blazed a trail few others have matched. So any addition to their catalogue – especially the Deluxe line, which is the flagship of the company – has a lot to prove. Newcomer Deluxe-Productions is an interesting complement to the top-rated series but it has faults which prevent it from being the major leap forward it could, perhaps should, have been.

The program is supplied on one of four disks, the other three containing a utilities suite and art screens to help get you started immediately. It works in the Amiga's 16-colour high-resolution mode (yes, the jittery eye-damaging one for all you 1081 monitor owners out there) and so has a voracious appetite for chip memory. If you do not have at least a megabyte of RAM you cannot use the program; even then the entire program cannot be loaded into memory at once, making overlay loading a necessity. If you do not want to become really frustrated with disk changes, two drives are warmly recommended! The ideal

screen. Bearable to work with but a real annoyance when you dump your work to videotape and see less than a full screen displayed. If EA want to keep their overseas friends loyal, they had better sort out a PAL version pretty quickly!

“movement even in this high resolution is smooth and totally flicker-free”

The program, despite its shortcomings, is genuinely a worthwhile addition to the Amiga's video effects library. It started life as a program called E/FX, which some of you may have come across. I was pleasantly surprised by this older animator but, although similar in some respects, DeluxeProductions has evolved into a far superior being.

Users of EA's Deluxe Video program who may have found the editing functions cumbersome will be pleased to learn that Deluxe-Productions is relatively simple to learn. A quick trip around the manual and its tutorials and the program becomes intuitive, using pull-down menus, storyboards and cut and paste functions.

There can be up to 12 scenes in a script and each scene can contain a sequence of up to five 'clips' – this is the program's name for brushes, or objects. Within any scene, a clip can have a path of up to 10 points which describe its movement. Speed of animation can be edited for a scene as a whole and then right down to the individual points along a clip's path; movement even in this high resolution is smooth and totally flicker-free. However, it does not seem possible to animate a brush by flipping, say, two images of a running man alternately. The brush itself moves as an entity, though some simulation of independent movement of the brush image can be achieved by using the old stand-by, colour cycling. You are also prevented from using a brush which is

bigger than a quarter of the screen. This is not so bad in full-depth PAL but brushes restricted to under 25% of the program's NTSC screen are on the lean side. Sometimes reducing the brush's number of colours (by going back into an art package) works, otherwise it is re-think time. Although scripts with a maximum total of 12 scenes do not sound too impressive, there is ample scope for a generous animation production and in any case you have the ability to chain further animation sequences once the current one is complete.



Control of scenes is totally mouse-driven and the main editing screen takes the form of a dozen information panels containing text details of the scene they represent, a clip-board for temporary storage of scenes and a file-management area. The scenes information is too abstract for my liking, having cut my teeth on the by-now ageing Aegis animator storyboard, which at least gives a miniature representation of the actual graphic screen. Still, you can display a chosen scene at any time and run through its clips. Clip editing is comprehensive, with details again being displayed numerically. For each of the 12 scenes, a 5-box display can be called up giving information about any of the clips available. From here you can open up another sub-menu control screen giving details about any object, providing x and y co-ordinates, length of pauses and speed of movement, as well as the effect used to wipe on and off. Alteration of these parameters can be done easily either by editing the numeric values displayed or, more simply, by re-entering the scene and starting over again.

When plotting a path, the object is fixed to the cursor, allowing you to position it anywhere on screen. (Though sometimes it is necessary to move the pointer on the object so you can reach all the screen edges. The function keys place the cursor at

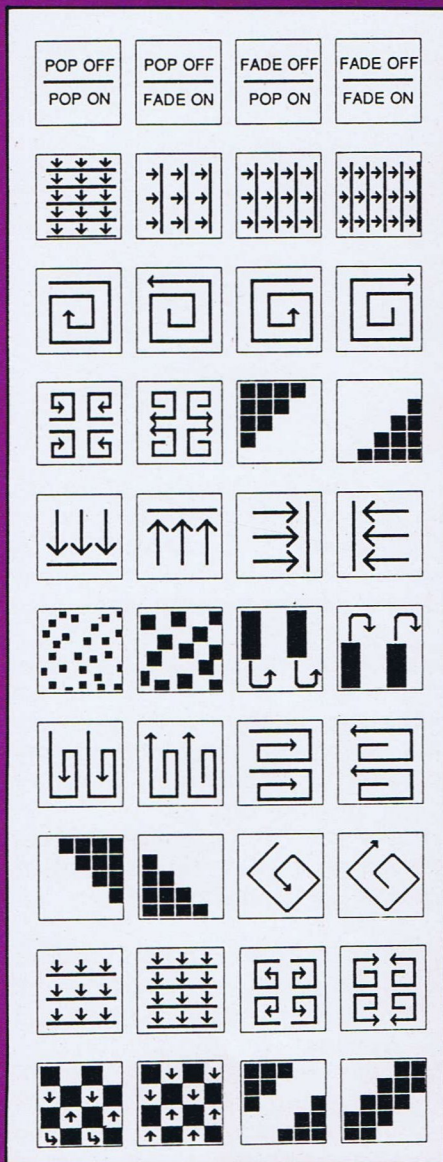


configuration is at LEAST 1.5 Meg of RAM; it is not really that the program itself is so vast, just that using double-buffered high-res screens pushes the graphic display of the Amiga to the limits.

Screen output is in NTSC format, so European PAL users face the band of wasted space at the bottom of the

various positions along the object you are manipulating.) Marking out the object's path is simply a matter of repositioning and clicking a mouse button, though there is no actual representation of this path while you are working, so making an object return to its starting point makes the use of screen co-ordinates essential. Thankfully they are displayed – but in a microscopic font which is a strain to read at this resolution.

Each background screen can



appear or disappear in one of 40 spectacular ways. Using an astonishing array of transitions, images can paint themselves in with effects such as venetian blind wipes, spirals, chequerboard and many pattern reveals as well as standard fades and rolls. Objects have a more restricted effects library, though with equally interesting transitions available. If you need a background to stay put during a script, you must still specify it as the picture for all of your scenes – though

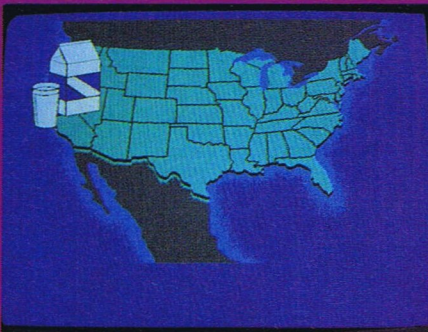
it is only loaded once.

While it is advisable for objects to share the same 16 colour palette as the background screen over which they will move, it is not essential. You have control over the palette for any scene but only in so far as you decide when and even if, the object colours take over from the background.

You can control playback of the finished production from the mouse or keyboard – pausing the display and playing the script backwards. In this way you control your presentation without being too specific at the time you create it.

To my mind the most glaring oversight in this program is the complete absence of any text input. Whatever text you need has to be created in the form of a brush from within an art package such as DeluxePaint, saved and re-loaded when you storyboard your animation. Forestalling this complaint to some degree, EA have created a small selection of new fonts purpose-built for high-res and these can be loaded into DeluxePaint.

The two art disks which come with the program contain some very worthwhile backdrops. In keeping with the Deluxe range, high quality is evident here and there are plenty of clever backgrounds on which to animate your work. In addition to full screens there is a wide range of objects to utilise, from drawings of office equipment to international symbols.



The utilities disk, as well as containing the hi-res fonts, also features a player program which will run through your animation and which can be freely distributed to show off your productions to friends. There is also a program to automatically move scripts from the disk on which they were created to another (because the scripts refer to the complete path names of files).

As a final piece of thoughtfulness, the designers have made it possible to format a disk while you are in the program (how many times have you been unable to save something because of a Disk Full error?). It is also possible to do a graphic dump of the current screen image, though there is

a pitiful selection of printer drivers in the Preferences section, so you must install your own onto the program disk. The manual bears the Deluxe quality stamp and competently and gently guides the reader through every facet of its use and how to get the best out of your computer configuration.

CONCLUSION

DeluxeProductions is wide-ranging and performs its difficult functions without a hitch. It combines video animation and slideshow functions in one well-designed package which will probably appeal more to people needing to dump to videotape than straightforward computer presentation – though casual users should be pleased with the results on screen. Genlock owners will have a field-day, being able to wipe art screens in many professional ways on to existing video recordings. Nearest rival I have used is TV*SHOW, which we reviewed in our June issue. Not as many screen effects and restricted object movement in the Zuma product but it did support multiple screen resolutions.

Now the reservations: it is not my idea of fun to sit in front of a hi-res screen while it jitterbugs on the 1081 monitor. The jitter-rid screen, for all it is only a bit of coloured plastic sold at an exorbitant price, does cut down on the irritation. I know some people actually wear polarised sunglasses to minimise discomfort in this mode. This is not a small complaint either – my eyes, used to staring at a VDU for nine hours a day, get badly affected by anything more than an hour staring at the hi-res blur. You have to bear with this because DeluxeProductions works in this mode to allow high-quality transfer to videotape. This is also one of the greediest programs in terms of RAM I think I have come across. Of the Amiga series, only A2000 owners will be able to use it at all without a memory upgrade. Sixteen colours is the price you pay for the mode being used; I don't know about you but this is never enough for my video work.

DeluxeProductions is good – but it just misses being great. I have a hope that one day the perfect video effects animator will come along; until then, DeluxeProductions is probably as good as you will get.

P.L.

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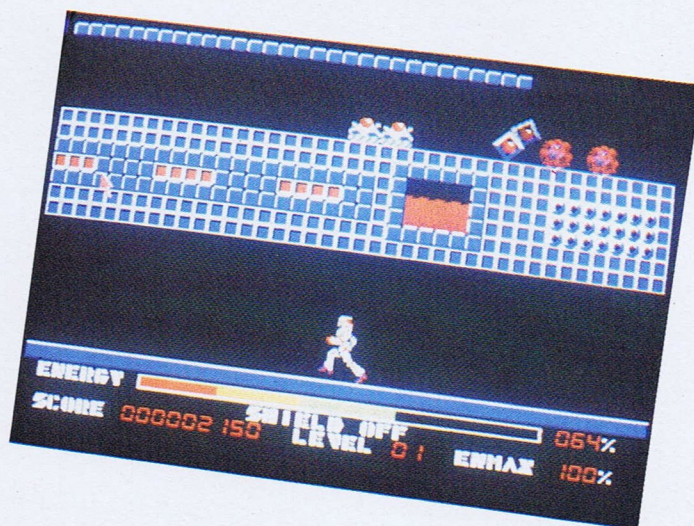
Thexder

Sierra

When a game boasts sales of over 500,000 in its home country you might expect it to be something a bit special. Then again you might realise that sales figures are not necessarily proportional to quality; a point which is proven in Thexder.

Thexder is a robot which operates in two modes. Mode one is your conventional human-like robot, in which you can run, jump and zap heat seeking lasers from your head. (Don't you do that all the time?) A downward pull on the joystick transforms you into a jet plane. Using both modes, sixteen levels must be negotiated before escaping to freedom.

Each level is a multi-directional scrolling maze with swarms and clusters of very standard aliens. Completing each level is just a matter of finding a way to the exit before the baddies get the better of you. If you keep your distance, aliens are easily zapped with the heat seeking lasers but when you are forced into flight mode the laser just fires straight ahead. All the levels and positions of the aliens are identical from one game to another and the instructions recommend you make a map. Level one is mapped for you and comes with tips on the



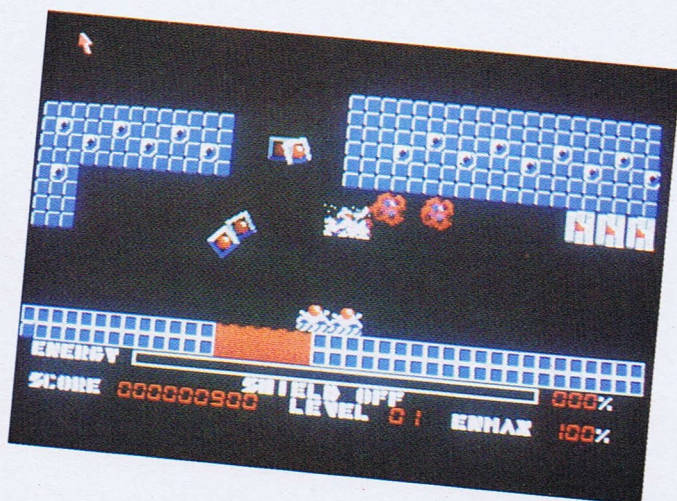
best routes which help you get started, although whether it is worth mapping the rest is another matter. Your two forms do play a significant part in the game. One mode is more suitable than another in certain circumstances, so some simple strategies can be developed.

Thexder looks very much like a Spectrum game with its jerky scrolling and almost monochrome sprites. Neither sprites nor backgrounds seem to have had much time spent on them, lacking any particular spots of detail or imagination. Running around repetitive caves or stone tunnels and frying insignificant aliens provides little entertainment from the start. The two types of robot give the game a pinch of variety but is really nothing that has not been done before.

From its bland graphics to its Magic Roundabout style music, Thexder is unimpressive. Going on its limited graphics and gameplay I would guess that it has been converted upwards from a far inferior machine. This might have been more than acceptable around five years ago but today is 1988 and games have come a long way since then; Thexder has not.

T.H.

Graphics: 4
Sound: 4
Playability: 5
Value: 4
Price: £19.99



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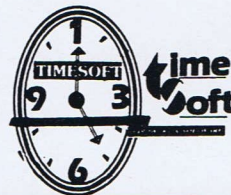
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Panzer Strike SSI

Panzer Strike is the latest in a long line of simulation/strategy games produced by Strategic Simulation Inc. As its name suggests this version is concerned with Tank battle simulations of World War Two vintage. Following recent trends this version also has a construction feature which allows different scenarios to be played of your own design.

Panzer Strike revolves around small unit actions which formed part of World War Two. These can either be selected from those supplied with the game or constructed by yourself. At the beginning of the historical scenarios you are provided with a mission. The mission must be completed within a given number of 'game turns' for it to be successful. Each 'game turn' consists of two parts, Orders and Combat. In the Orders phase you pass orders to your assigned units who will then attempt to comply with those orders in the Combat phase. A 'game' can consist of one battle or a whole campaign. Each battle can last for either thirty or sixty one minute 'game turns' and a campaign consists of several battles.

The war theatres, or fronts, can be chosen from the three which formed the major areas of the Second World War, Eastern and Western Europe and North Africa. Within each theatre the two sides consist of the countries that were involved in that area at that time.

The game is menu driven which means that the player decides how the game is to progress by choosing options from various menus. It can be played with two human opponents or with the computer playing either the Axis or Allied sides. A demonstration mode is also possible with the computer playing both sides. There is a Handicap element which is effect reduces the strength of the side which can be either your own or

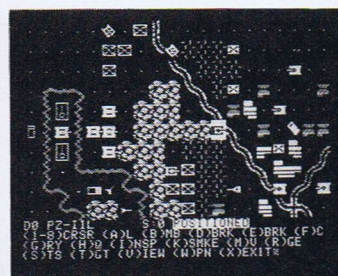
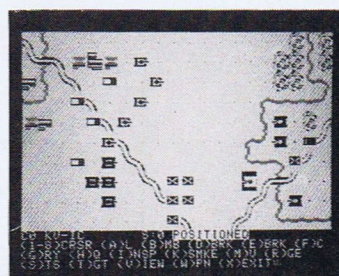
your opponents side. To speed up the game the length of time that messages, displayed during the Combat phase, remain on the screen can be shortened.

The main aspect of the game is the giving of orders from HQ units to subordinate units. There are four major types of orders, movement, fire, organisational and cancellation. Once orders are completed the Combat phase begins and will continue until an interrupt is made to issue further orders.

The completion of a mission or victory is decided on the accumulation of points, which is

All this sounds very complex and as computer games go Panzer Strike is certainly a complex game. To ease new simulation players into it SSI have provided a Tutorial scenario. This gives a step by step run through a battle and explains each of the phases. To give some idea of the complexity of the game the tutorial takes up five pages of the instruction manual.

Panzer Strike is not a game that can be loaded and played immediately, the instruction manual must be read first. The speed of the game depends on the individual player's ability to



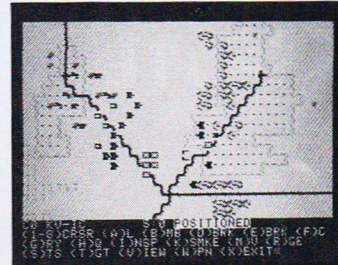
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ARMOR	FT	FR	ST	SH	TP
SIZE	14	18	6	6	4
MAX SPEED	5				
MIN	17				
1ST SHOT	5				
RADIO	YES				
SKILL	2				
MOBILE	5				
COST	18				

RANGE	60
ORDNA	3
COMMAND	9
CMO	CHL
YES	

PRESS KEY TO CONTINUE



based on what has occurred during the battle or campaign. Points are gained by moving your units off the enemy side of the battle ground or the destruction of enemy units. The type of mission effects the points, 'Engage' multiplies destroyed units by two, 'Bypass' multiplies successful unit by five and a 'Clear' mission receives 100 points if the clearance is successful. These missions are for an attacking force and there are complementary missions for the defending force, 'Engage', 'Delay' and 'Hold' with appropriate points values depending on the resulting action.

assimilate the rules. The tutorial game took approximately an hour to play with the historical scenarios even longer.

Panzer Strike is not a game for the shoot-em-up fan but if you are beginning to get bored with that type of game or more complex games are your preference then Panzer Strike may very well be the game for you. Panzer Strike comes on two disks with a fifty page instruction/rule book and a briefing manual which contains force strengths etc, certainly give high value for money.

L.K.

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COMPUTER MODEL

From Workbench to CLI

The Amiga's Workbench may be a very friendly interface. But it does, however, have its limitations. The CLI on the other hand is a very powerful tool but lacks Workbench's ease of use. Robert Penfold takes you through some of the most useful CLI commands to help you balance the problems with the power.

Having used a large number of home and personal computers, I have grown used to most machines lack of documentation. To be fair, the Amiga is no worse in this respect than many other computers, and much better than some. However, it still came as something of a shock when I first used the CLI. The manual supplied with the Amiga describes in detail how to get into the CLI, but gives no details whatever of the commands! Of course much software can be run from Workbench, and a lot of day-to-day chores (disk copying, formatting, etc.) can also be handled from Workbench. Unlike some similar systems (notably GEM), Workbench is not usable with just any files or directories on a disk. They must be accompanied by icon information files, or no icons are displayed. With no icons to manipulate Workbench is unusable.

If you need to know about the finer points of AmigaDOS there is little alternative to taking out a mortgage and joining the waiting list to buy "The AmigaDOS Manual". However, most users probably only need to know a few fundamentals in order to use the CLI effectively, and this article will try to provide the necessary information.

"Into the CLI"

You can get into the CLI via Workbench, as described in the manual provided with the Amiga, or the quick route is to press "CTRL" and "D" on the keyboard when the Workbench disk is loading. When the CLI is running you should see "1>" plus a cursor block. The "1" indicates that this is the first CLI (you can have several running at once), and the ">" is the prompt that indicates the CLI is ready to receive commands. CLI is an acronym for "Command Line Interface", and it responds to typed commands.

The pointer can still be moved with the mouse, but it serves no purpose, apart from manipulating the CLI window. I usually enlarge the window to cover the full screen, as information otherwise tends to scroll off the top of the screen before it can be read.

Most Amiga disks are divided into sub-directories. These subdivisions are the same as the "drawers" of Workbench. When the contents of a disk are displayed from Workbench it shows the main or "root" directory, with drawer or other icons being used to represent sub-directories. Opening drawers shows what files are present, or further sub-directories.

'A second drive is generally regarded as a necessity by many Amiga owners.'

The CLI equivalent of this is the "dir" command. Assuming that the Workbench disk was loaded from the internal drive ("df0:"), and that you wish to list the contents of the disk in the external drive ("df1:"), you must direct the computer to the correct drive. As Workbench is in df0:, this will be the default drive, and simply typing "dir" and pressing return will list the contents of the Workbench disk. To redirect the computer's attention to df1: you can type:—
cd df1: RETURN

Typing the "dir" command should then have the desired effect. The "cd" instruction is the "change directory" command, which in this case changes to the root directory of whatever disk is in drive df1:. The two commands can be merged into one, as shown below, but this does not have quite the same effect. It lists the root directory of df1:, but it leaves df0: as the default drive.
dir df1: RETURN.

"Labels"

With only a single drive available the CLI is rather more difficult to use, and a second drive is generally regarded as a necessity by many Amiga owners. In truth, the Amiga has an advanced disk operating system which probably makes life easier for the single drive user than most other operating systems. Amiga computing will always be easier with a second drive, especially disk and file copying, but you can do quite well with a single drive. A lot of the problems experienced by CLI users are probably due to a lack of understanding of the way in which AmigaDOS functions, rather than any shortcomings in AmigaDOS.

Most operating systems work on the basis of reading and writing to disk drives rather than disks. The disk in the drive is mostly assumed by the computer to be the right one, whether it is or not. With AmigaDOS it is better to circumvent drive names as far as possible. Tell the Amiga which disk you want it to use, and it will. Which drive it is in does not usually matter!

This is possible with AmigaDOS because it uses disk names. These are names actually stored on the disk, and all Amiga disks have them. When a disk is initially formatted it is always called "EMPTY", but it can be renamed using the "rename" command from the CLI or from Workbench, which is probably the easier way of using it.

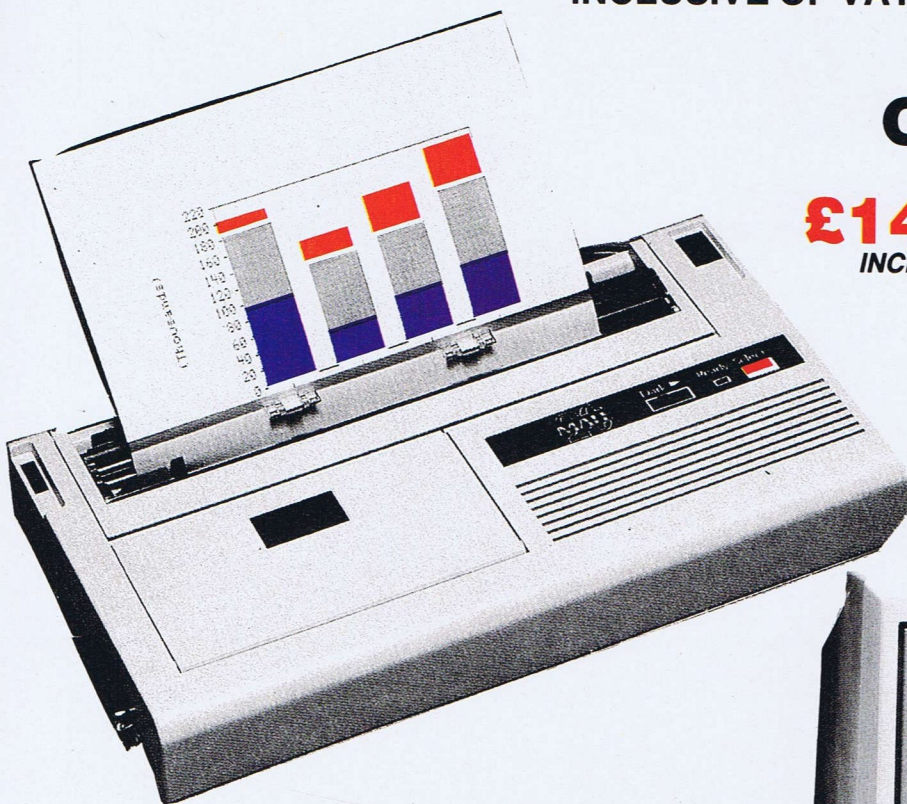
To obtain the directory of a disk on a single disk machine, simply type "dir" followed by the name of the disk and a colon (e.g. "dir textedit: RETURN"). The significance of the colon will be explained later. At this stage the Workbench disk should be in df0: so that the "dir" programme can be read from it. You will then be prompted to place "VOLUME

continued on page 69

LAN COMPUTER SYSTEMS

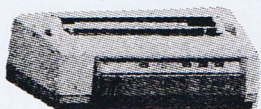
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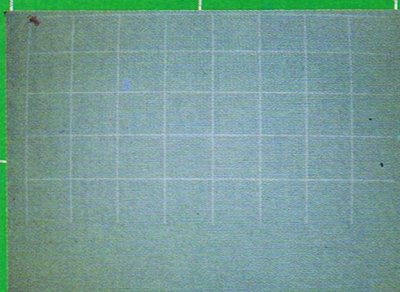
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GRID GRAPHICS

A few simple ideas and an Amiga could bring out the Rembrandt in you. Phil Wilkes explains how to brush up your artistic tendencies.

Do you remember the pages in children's activity books in which you are asked to copy a picture onto an empty grid? Well, this grid technique is not only suitable for children – even the Old Masters used 'squaring up' as a method of transferring their sketches onto a full size canvas.

Using a grid is also a very easy but very powerful method of drawing on a computer. One of the most difficult things to get right in any drawing is the basic shape and proportions of a picture. Once this is done, adding colour and detail are often relatively straight-forward. Indeed, if all you want is a cartoon style picture, it is virtually automatic.



So how do you use the grid technique? Just follow the simple stages given in this article and you will be producing attractive and accurate artwork to rival the best of computer artists! My example is of a girl's head, taken from a magazine but the technique is applicable to just about any subject you care to name. It was done with DeLuxe Paint and I will refer to this in the text, as most people will be familiar with it. However, the techniques can be used with other art packages, or even with other computers.

The first stages involve putting a grid on both the computer screen and over the picture you want to transfer to the computer. Which size grid should you use? This is a matter



of personal preference – the finer the grid, the more accurate will be the result. However, if it is too fine, you are likely to spend as much time counting tiny squares as you are actually drawing! For the standard Amiga screen of 320×200 , I divide it into squares of 40 pixels, giving a grid of 8×5 squares (see Fig 1).

Using DPaint's built in grid facility, define a suitable grid size and the use the outline rectangle tool to construct your grid. I usually select a fairly neutral tone as the background

'The best way to provide a grid is on transparent slides as used for an overhead projector'

colour and use a slightly paler one for the grid lines so that they are clear but not too prominent. Leave colour 1 as a strongly contrasting tone so that the menus are clearly visible and use colour 2 for the grid colour (you will see why a little later!). Save the grid once it has been drawn

so that you will only need to draw it once.

Now putting a grid on the picture to be copied. There are two ways to do this. Firstly, you could just use a fine pen or pencil and draw directly on the picture. This has the drawbacks that it spoils the original and may obscure some detail.

The best way to provide a grid is on transparent slides as used for an overhead projector. If you can, get hold of a few slides that can be used in a photocopier. Draw a series of grids of different sizes onto plain paper and then copy them onto your transparencies. You will then have a set of grids which you can use over and over again. Simply fix the transparency over the picture to be copied with a length of tape on one side so that it acts as a hinge. Then you can fold the grid aside if you need to study a detail under the grid, but you can fold it back into exactly the same place as it was originally. I have about five such transparencies covering a range of sizes and they are worth their weight in gold!

colour 2. Then select a large brush, colour 2 from the palette and go over the whole picture with the right hand button on the mouse pressed. This will turn all pixels which were colour 2 into the background colour while leaving the outline drawing (in colour 31, outside the Shade range) unchanged. See Fig 3 for my worked example of this.

That is really all there is to using the grid technique but I have continued my worked example to show how I turn the outline drawing into a finished picture. The next stage is to add colour, mainly by using the flood fill tool (see Fig 4). Make sure the areas to be filled are fully enclosed. It will be important by now to have established your palette colours and ranges in order to start adding shading.

3



4

Preparations completed, it is now time to copy your picture onto the computer grid. You will probably use the freehand drawing or straight line tools for most of this, but use the circles or other shapes if they apply to your picture. I recommend using colour 31 for this outline drawing, set to black. Proceed square by square and do not try to include too much detail at this stage. Remember, the main objective is to get the overall size, shape and proportions correct but not necessarily every pixel perfect. This stage is illustrated in Fig 2.

Having produced a good outline drawing, it is necessary to remove the grid so that colour and detail can be added without interference. A good way to do this is to use the Shade option in DPaint. Set the Shade range to be from colour 0 to

If you want a cartoon style picture, you need go no further. In this example, I have worked over the picture adding more detail and shading in order to give a more realistic image. Most of this was done with a single pixel brush and using the zoom window with the lowest level of magnification. I have also removed all traces of the original outline as I wanted to avoid the cartoon style in this picture. For another subject, I might leave it in – it all depends on the feel you want to achieve. The final image is reproduced in Fig 5.

I hope that this article will inspire you to have a go at producing pictures on your Amiga. You now have the tools and techniques – the rest is up to you!

P.W.



5

Flight Path 737

Anco

This month we have two games that both set out to recreate all the tension and excitement of piloting an aircraft. The contrast between Flight Path 737 and Interceptor is unsurprising if you reflect the £9.95 price tag of '737'.

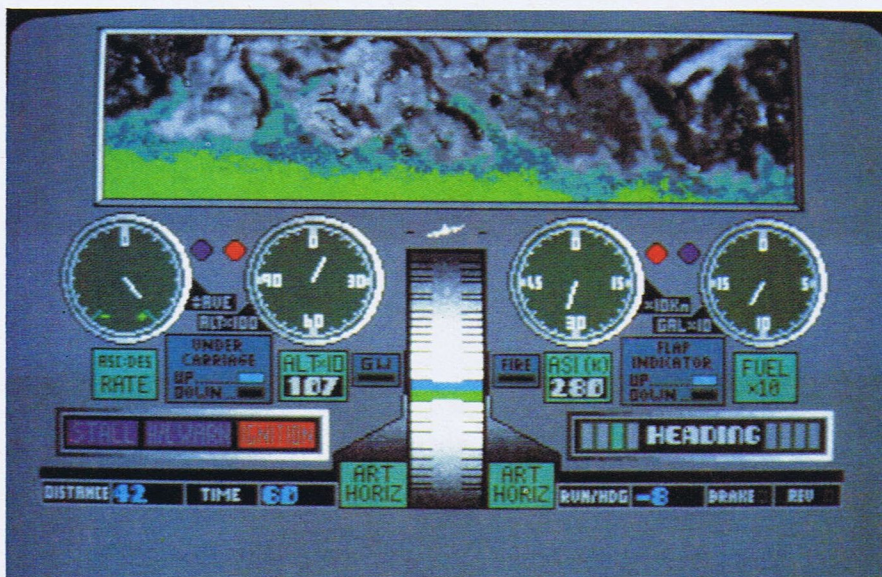
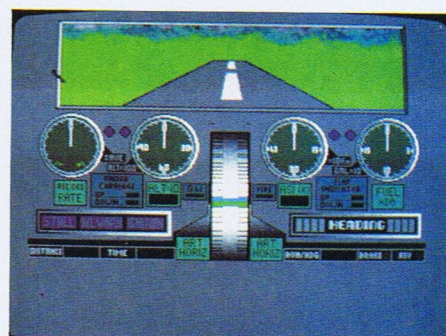
Of course, the 737 is a civil aircraft so heat seeking missiles are nowhere to be found, instead you grapple with the unwieldy controls of a 737 jet. Your goal is to pilot the plane on a routine flight, taking off, climbing over a steep mountain range, cruising for a while and setting down at your destination without crashing. Setting up is a series of

As you approach the mountain range, precise amounts of thrust and lift are needed to avoid a disastrous collision. The third stage arrives up behind the mountains. A rather uneventful

'A simple improvement would have been to include a joystick control option which could have made it far more realistic.'

cruise across woodland is interrupted by the occasional engine

the jet down in one piece calls for yet more careful adjustments to your speed, pitch and flap settings.



mouse button clicks which soon could become tedious without adding much realism. Once set-up, the flight can begin.

More rather awkward combinations of mouse and button presses are needed to gain enough speed for take-off without veering off course. The runway extends a short distance before you and jerks into the foreground as you gain speed. Once your speed is high enough you can pull up, taking the flaps and undercarriage with you.

fire or bout of air turbulence. Approaching the runway marks the beginning of the end. Getting

There is just so little to get excited about in 737. Of course, the basis of civil flying is, one would hope, fairly uneventful (at least when I'm aboard the plane!). But with this version I never felt as if I was really there, just that I was sliding a mouse around to keep a set of dials from overloading. A simple improvement would have been to include a joystick control option which could have made it far more realistic. A reasonably realistic rumble exercises the speaker but does little for the game.

Even after a few plays, Flight Path 737 bored me rigid. It relies on a set routine being followed every game. It takes little imagination to see that no-one will want to play the same game in exactly the same way every time. A budget game does not aspire to an Interceptor – for under a tenner – but in this case, the price should be no excuse for such a simple, unexciting conversion of an ancient 64 game.

Graphics: 3
Sound: 3
Playability: 3
Value: 5
Price: £9.95

B.V.

continued

DiskName IN ANY DRIVE", and the directory should then be listed.

"File Names"

When delving into public domain disks you will often find files with a name such as "READ.ME". These are usually text files which can be read using a word processor or text editor. They can also be displayed on the screen using the CLI's "type" command. For example, to display the file "READ.ME" in the current drive and directory, this command would be used:—

```
type READ.ME RETURN
```

'AmigaDOS is very generous in that filenames can be up to thirty characters long'

Most files are more than single screen-full, and will scroll far faster than you can read them. The scrolling can be halted by pressing virtually any key, but the space-bar is probably the easiest one to use. Press RETURN or BACK-SPACE to continue scrolling the display.

Sub files can be given names using upper case letters, lower case letters, or a mixture of the two. The CLI ignores the case of letters though, and in the above example "read.me" or even "ReAd.Me" would work just as well. Similarly, commands can be in either case, or a mixture of the two. AmigaDOS is very generous in that filenames can be up to thirty characters long. This enables meaningful file names to be used.

"Directory Navigation"

Some files names are followed by "(dir)", which indicates that they are subdirectories. Using a twin drive system, moving up and down through sub-directories is quite straightforward. Have the Workbench disk in DF0:, and the disk you wish to search through in DF1: (which should be the current drive). To change to a sub-directory simply type:—

```
cd DirectoryName RETURN
```

The "dir" command will then list the contents of the sub-directory. You can also list the contents of a sub-directory by specifying the disk name and directory name (e.g. "dir AmigaDisk1:Progs RETURN" will list the contents of the sub-directory "Progs" on the disk called "AmigaDisk1"). This second method lists the contents of the sub-directory, but does not make it the current directory.

Listing the contents of a sub-directory may reveal further sub-directories. The "cd" command can be used to move down into sub-directories as many times as necessary. To move down more than one level in a single instruction you must provide the Amiga with a list of

directories it must pass through on the way. The "cd instruction then takes this form:—

```
cd Level1/Level2/Level3 RETURN
```

This example moves from the current directory to the sub-directory "Level1", then to a sub-directory of this called "Level2", and finally to a sub-directory of this called "Level3".

It is possible to move up one or more levels and then down into another part of the directory structure, all in a single instruction, if the move is made via the root directory. Consider this example:—

```
cd AmigaDisk1: Level1/Level2/Level3 RETURN
```

This is much the same as our previous example, except that it will take you to sub-directory "Level3" regardless of the current directory when the command is issued (we are assuming in this example that the disk in use is called "AmigaDisk1").

If you only want to move back to the root directory, use the "cd" instruction followed by the disk name (e.g. "cd AmigaDisk1: RETURN"). Always remember to add the colon after the disk name. If you just want to move up one level, this command can be used:—

```
cd /
```

To move up two levels, the instruction:—

```
cd //
```

would be used. You can add as many "/" signs to the instruction as required.

The method of listing directories and moving up and down through sub-directories is much the same using a single disk system. In order to avoid just getting directory listings of the Workbench disk, you must make the disk you wish to explore the current device (not the drive). This is done using the "cd" instruction, as described previously. This is a crucial point if you are a single drive user, and one that seems to lead to many users getting into a tangle. Some disk swapping will be needed, but the computer will provide on-screen instructions telling you which disk to place in the drive each time a change is required. A lot of disk swapping will be needed thereafter each time an instruction is issued, because most CLI instructions are read from disk each time they are needed, and are not held in memory. There are possible ways around this, such as using a RAM disk, but unless you are going to spend a long time wading through directories it is probably easier just to settle for some disk swapping.

If you wish to make a sub-directory, first make the directory or sub-directory that is to sprout the new one the current directory. Then use the "mkdir" command followed by the name of new sub-directory. This command would produce a new sub-directory called "TestDir":—

```
mkdir testdir RETURN
```

"Copying"

A major use of the CLI is for copying files from one disk to another. This is done using the "copy" command. For instance, this instruction would copy the file called "readme" in the current directory to the root directory of the disk named "Empty":—

```
copy readme to empty: RETURN
```

Provided full path details are provided, you can copy from any directory on any disk, to any directory on any other disk. Consider this example:—

```
copy AmigaDisk1:manual/readme to Edit:docs RETURN
```

This copies the file "readme" in the sub-directory "manual" on the disk called "AmigaDisk1". It placed the copy on the disk named "Edit" and in the sub-directory "docs". An important point to realise is that if the Amiga finds a file at the destination directory which has the same name as the file being copied, this existing file is over-written and lost. If you want to copy all the files in a directory rather than one file, then simply specify the directory as the source. In the example above, if "readme" was a directory, then all the files it contained would be copied. AmigaDOS does not let you have a directory containing a file and a sub-directory with the same name. This avoids confusion with the "copy" command not knowing whether to copy a single file or a complete directory.

There are a number of options that can be used with the copy command. One of the most useful is "all", which can be added at the end of copy instructions. This is used when copying a directory, and its effect it to cause any sub-directories to be copied as well. As an example:—

```
copy AmigaDisk1:docs to Edit: all RETURN
```

will copy the "docs" directory on "AmigaDisk1", plus any sub-directories, to the root directory of the disk "Edit".

Incidentally, copy can be used to move files from one logical device to another (e.g. "copy AmigaDisk1: test to prt: RETURN" would read the file called "test" from the disk called "AmigaDisk1" and send it out on the printer port), thereby printing it out.

"Deleting"

To delete a file or sub-directory, simply use the "delete" command followed by the file or sub-directory name (e.g. "delete test RETURN" would delete the file or sub-directory called "test" in the current directory). You can not delete a directory that contains any files unless you add "all" to the end of the instruction. This deletes the sub-directory, any files it contains, plus any sub-directories it may have (and files contained therein).

continued on next page

continued

From Workbench to CLI

You can delete something that is not in the current directory provided the instruction includes the path to the file or sub-directory. You need to be careful when using this method as it is easy to make a mistake and delete the wrong thing. There is no built-in undelete command in AmigaDOS.

"Running Programs"

Files that do not have an extension (apart from those called something like "readme") are usually executable programs. Assuming a program file is in the current directory, simply typing its name and pressing RETURN will run it. Preceding the program name with "run" will also run the program, but it will start a new CLI and run the program under this. The original CLI will still be running in the background.

"Logical Devices"

You may have noticed that disk drive and disk names always end with a colon, but directory and file names do not. If a name ends in a colon it is assumed by the Amiga to be a "logical device". A logical device is any part of the system that can provide input and (or) take output, and it is usually a real device such as a disk drive, the parallel port ("par:"), or the serial port ("ser:"). It can also be what I suppose is best described as a notional device rather than a real one. A named disk is an example of this, and it is treated by the operating systems as an input/output device. Obviously it can only be read from or written to if it is in a drive, but which drive is unimportant. AmigaDOS will find it if it is in one of the drives.

Here are a few points to note that should make things as pain-free as possible.

1. Command words are always followed by a space.

2. Device names, including disk names, always end in a colon. Directory and file names do not normally have a colon.
3. Use disk names whenever possible, not drive names. This is especially important if you have a single drive system.
4. The fact that you have removed a disk from a drive does not mean that AmigaDOS has forgotten it. If it was the current disk, it will remain so until AmigaDOS is told otherwise.
5. You can perform operations on disks not currently in a drive, provided that disk is used as a logical device. AmigaDOS will tell you when to place the disk in a drive, and when to make any further disk changes. It does not normally matter which floppy drive you use.

R.P.

64 TO AMIGA continued

space between each command. Eg: "FOR s=1 TO 10". This can be a nightmare in a large program which is best solved by loading the program into a word processor as a sequential file then using "Search and Replace" to put the spaces in.

FILE TRANSFER

Word processor files such as those pro-

duced by "Easyscript" etc. are usually in a sequential ASCII format or will have the option to be saved in this format. Transfer is straightforward although embedded printer commands will need to be edited to suit your Amiga word processor.

Database files need a little more care. Most 64 databases allow you to save all the files in a large sequential ASCII file with field separators (usually a comma)

and a record separator (usually a carriage return). This large ASCII file is transferred to Amiga disk where it can be "imported" into your Amiga database.

Program 1 (C64)

```
100 open2,2,0,chr$(6)+chr$(1)
105 print
110 read a$:print a$
115 if a$="end" then 190
120 open 1,8,2,"O:"+a$+",s,r"
125 print#2,a$
130 get#1,c$
131 print c$;
135 :
136 if asc(c$)>=65 and asc(c$)<=90 then gosub 200
137 if asc(c$)>=193 and asc(c$)<=218 then gosub 300
138 if asc(c$)=255 then gosub 400
140 ss=st
150 gosub 600
160 if ss=0 then 130
170 c$="eof":print#2,c$:print c$
180 close 1:goto 110
190 close 1:close 2:end
195 :
200 c = asc(c$)+32
210 c$= chr$(c)
220 return
250 :
300 c = asc(c$)-128
310 c$= chr$(c)
```

```
320 return
350 :
400 c$="pi"
410 return
420 :
600 print#2,c$;
650 return
800 data
900 data
1000 data end
```

Program 2 (Amiga)

```
10 OPEN "COM1: 300,N,8,1" AS #2
20 INPUT "Enter Disk Name ",d$
30 LINE INPUT#2,a$ : PRINT a$
40 IF a$="END" GOTO 140
50 a$=d$+"."+a$
60 OPEN a$ FOR OUTPUT AS #1
70 LINE INPUT#2,n$
80 PRINT n$
90 IF n$="EOF" THEN 120
100 PRINT#1,n$
110 GOTO 70
120 CLOSE 1
130 GOTO 30
140 CLOSE 2:END
```

This month letters answered by the Amiga User Group's technical guru – Yuri Large.

Dear AUI,

Could you tell me if the price of the Amiga 500 is likely to drop, stay the same or go up. The reason is on one hand you have the exchange rate of the pound going up and on the other the price of DRAM chips from Japan have gone up.

I looked up the price of the Amiga in an American publication, the first price I saw was \$589 for the Amiga 500. Working on that figure and an exchange rate of £1 to \$1.50 (which it has been above for more than a year), you could buy the Amiga 500 for £392. In Germany it is reported that the Amiga 500 sells for £333.

You might say that there are shipping charges to go on top but seeing as the machine is made Korea, I cannot see that it makes much difference. We are told we are the most computer literate country in the world. Do companies think we have to pay over the odds for that privilege?

I only hope Commodore realise that this is the time to overtake the ST market and keep their prices down.

Yours faithfully,
Barry Holland

Dear Barry,

I will not try to explain Commodore's pricing policy, as for one thing I do not understand it and for another I do not have enough time to research it (and by the time I'd finished it would have changed!) It is unlikely that Commodore will raise the price of any of the Amiga range in the immediate future. At a recent developers' conference in the UK, a Commodore representative explained how, in the light of the current world shortage of DRAM chips, they are able to maintain prices. Commodore is one of the world's largest users of DRAMs. Due to this they buy their DRAMs over two years in advance of their use. Thus Commodore are still using DRAMs that they bought at old prices in the manufacture of current Amigas. By the time Commodore run out, the price of DRAMs should be back to a more normal level, thus there will be no need for them to increase prices. Happily this should see that the Amiga 500 will continue to compete with the Atari ST's price tag well into the future. Indeed there is strongly rumoured a possible cut in the U.K. price (but not of other countries) to enhance the CBM marketing campaign.

Dear AUI,

I've had my Amiga for about a week and although I'm delighted with it, I have

come across a couple of problems and I would be grateful if you could help. I have created my own start up sequence, which copies my required DOS files into the RAM disk and sets a path to those to these files. Although the path works perfectly, if I mistype a command, I get the system prompt to insert my original system disk. I presume that the C: in the path is telling the Amiga DOS to look for the command in the C: directory of the boot up disk but how can I override it? I have tried PATH RESET but all this does is remove the path command(s) which I have added. Can it be done?

Secondly, why is there only 25k available for AmigaBASIC source code? Even my trusty old 64 has 39K. Although the BASIC is very powerful it seems odd that there is such a small amount of room to program in. Also, do Microsoft (or anyone else for that matter) intend writing a compiler for AmigaBASIC? I've worked extensively with Microsoft's Quick BASIC on IBM machines, (which is not dissimilar to AmigaBASIC) but miss the option to compile the program to run without the interpreter.

Thirdly, what does the Binddrivers file do?

Thanks for an excellent magazine.

Yours faithfully,
Russ Walton.

Dear Russ,

All commands used by the CLI are stored in the c directory of your workbench disk. When you type in a command the CLI first scans the current directory to find the command and then looks in the current c directory or 'C:' which is its device name. This route of checking for a command is called the 'path'. The PATH command allows you to add directories to be checked to your currently defined path. However, the CLI always checks the c directory or 'C:' last. Therefore if you set up a RAM disk with your CLI commands in it and then type in something that cannot be found there or in the current directory, then the CLI will try to check the c directory on your workbench disk. Thus it will ask you to insert your system disk in any drive. The way around this is to tell the CLI to use your RAM disk as the c directory or 'C:'. This is done using the ASSIGN command. For instance if you have stored all your CLI commands in the root directory of your RAM disk, you would use:

ASSIGN C: TO RAM:

Now on to your second problem. As the Amiga is a multi-tasking machine it is

important that all the programs running in memory take notice of each other. This is done, transparently, by the Amiga's memory, process and task management system which is called Exec. Due to this AmigaBASIC only allocate itself 25000 bytes when opened, so as to guarantee that it can run on most systems. If you find that this is not enough memory for your programs you can allocate more by using AmigaBASIC's 'CLEAR' command, e.g. CLEAR ,50000 (allocates 50000 bytes of memory to AmigaBASIC).

There is already an AmigaBASIC compiler available. It is called AC/BASIC and was written in the States by ABSOFT. This package allows you to compile all AmigaBASIC programs and also adds a few extensions to the language. It was reviewed in May's AUI.

Finally, the purpose of the BINDDRIVERS command is literally to bind device drivers for add-on hardware. It is usually used in the startup sequence to inform the system of the presence of external devices, which have the appropriate device driver stored in the expansion drawer of the workbench disk. For instance a hard disk or bridge-board.

Dear AUI,

I had just begun to get used to the environment of the Workbench and the new BASIC commands when I fell prey to the age of old case of Disk-Ignorance. The story unfolds like this: I was at home on my keyboard after a hard day's keying in a new routine when I had to format some new disks for use. I got the disks and inserted them one after the other as they were formatted and as I was in a semi-conscious state I absentmindedly put in the Workbench and Extras disk to be formatted. I had been using them for writing and had let write-protect open!!!!

PLEASE could you tell me where I can get new copies of these disk as I am going crazy without them!

Yours in anguish,
Paul Sheridan

Dear Paul,

Firstly you deserve a good slap on the wrists, ALWAYS use backups of your Workbench and Extras disks! However, you should be able to get replacements from your local Amiga stockists. If you do experience any difficulty with this contact the UK Amiga Users Group, who as always will be happy to help.

Dear AUI,

I am in the process of buying an A500 (UK 512k) and I have a few questions to ask.

1 Is there a cheap (less than £200) digitizer that will allow me to digitize in either 32 or 4096 colours from a VCR and video camera? I have seen adverts for DigiView but it does not say that you can use a VCR.

2 Is there any way of switching the screen mode so that American games which use a resolution of 320 × 200 can be switched to fill the whole screen of UK's 320 × 256 resolution, as it is annoying that about a fifth of the screen is blank?

3 Is there any way of recording the Amiga screen/graphics – in colour – on to my VCR without using any expensive hardware?

4 Do you know of any Public Domain software suppliers that do not just sell FISH & AMICUS disks? These may be a standard but after looking through a recent catalogue, over half the programs on each disk I would not need for use. ST Public Domain suppliers have got it right, e.g. disk 1 pictures, disk 2 sampled sounds, disk 3 animation, disk 4 Neochrome utilities, etc, etc.

5 Is there a 'dead' music keyboard available that uses the Amiga sound chip to play music like the ones you could buy for the C64 & C128?

Yours Amigally,

Gary Tinsley

Dear Gary,

1 The DigView digitizer is still the only sub-£200 colour digitizer available. It will digitize from any stable video source and thus will only work with a video camera or VCR with digital freeze-frame. There are also now available frame-grabbers, which will digitize from any video source although in my experience the quality of images captured is not as good. They are also more expensive, especially for colour digitizing in HAM mode.

2 No, unfortunately if a game or other software is written for an NTSC screen it will always miss the bottom inch or so of the PAL screen. Most pieces of serious software are now available in PAL versions.

3 The A520 modulator will allow you to record direct in colour from your Amiga.

4 At present most PD software is only available in the guises you have already described. I have no doubt, however, that some industrious soul will one day take you up on your idea.

5 The Amiga will, via a simple MIDI interface, enable you to use a 'remote' keyboard to drive some Amiga music programs. Make sure to check that any keyboard/synthesizer you consider buying has MIDI facilities before parting with your money.

Dear AUI,

I've got a couple of questions to ask which I think other AUI readers might also want answers to, so here goes.

Firstly is there any need to buy Commodore's RAM expansion for my Amiga 500, or is Datel's 512k expansion a viable alternative?

Secondly, can I connect my Amstrad DMP200 printer to the Amiga; and if so what cables do I need?

Finally, your review of Rolling Thunder in my opinion was slightly over-rated (score-wise).

Yours faithfully,

J. Stewart

Dear J. Stewart

Datel did have a few initial problems with their A500 RAM expansion but these have now been remedied. This unit now offers a good alternative to the Commodore A501.

The Amstrad DMP2000 is a standard centronics printer and should therefore connect directly to the Amiga. Use the Epson printer driver from Preferences which should enable it to produce the required output. With regard to the Rolling Thunder review, all of our assessments represent the personal opinions of the reviewers. However, on the whole we do feel that the scores we give do give a good overall view – but as in any subjective view what we like may not suit you – and, of course, vice versa.

Dear AUI,

We're all tired of our old Workbench or DPaint fonts but extra font disks cost upwards of £15! Solution? Copy the fonts from that 'The Very First' tutorial disk you receive free with an A500. Here's how:

Boot 'The Very First' but type CTRL-D to exit to CLI. Type LOADWB and then load the Font Editor from your Workbench disk. It will ask for 'The Very First'. Examine the fonts for one you like, then save to your Workbench or DPaint backup. However, only save one size of each font as they're all the same. WARNING!!! Don't save too many to DPaint, as it can only show a limited amount on a menu.

Yours sincerely,

Niall Caldwell

Dear Niall,

Thanks for that handy tip, I'm sure a lot of our readers will be interested to read it. Another source of cheap fonts is the public domain disk, UKAUG number 22!

Dear AUI,

I only recently got my AMIGA 500 and so many questions might be obvious but I would be very grateful if you could help me.

1 How do you install a disk so that the disk's icons appear when loaded?

2 Can you connect a 1081 monitor to a video and how?

3 What actually is a Guru message?

4 I only have the Microsoft Basic book and I don't understand how to use the wave statement, can you help?

5 What is Baud Rate?

6 What are ILBMs, ACBMs, MicroEmacs on the Extras Disk?

7 In the Read Me on the Extras Disk it mentions the Amiga Toolkit Diskette, what is this?

I know that are a lot of questions here but even if you answer only a few I will be most grateful.

Yours faithfully,

Karl Bergin

Dear Karl,

1 Any disk inserted into the Amiga will show an icon from the workbench. However, to use it you will need to format the disk. See the 'Introduction to the Amiga' manual.

2 A 1081 can quite easily be connected to a video. Simply connect the composite video out from your VCR to the composite video in on the back of the 1081. Voila, beautifully sharp pictures!

3 A Guru message appears when the Amiga crashes. The number given associates with the error that has caused it. This helps programmers to debug their programs.

4 The WAVE statement in AmigaBASIC takes the form of: WAVE voice, array. Voice is the voice number you want to use. The Amiga has four voices so the possible values are 0, 1, 2 and 3. Array is an array of at least 256 numbers given to define the waveform of the sound you are creating. Each value of the array must be between -128 and 127, with 0 representing silence. To experiment try this short program, which sets up a simple square wave:

```
DIM waveform & (255);
FOR n= 0 to 127
waveform & (n) = 127
NEXT
FOR n= 128 TO 255
waveform & (n) = -128
NEXT
WAVE 0, waveform &
SOUND 440,20,255,0
```

5 Baud rate refers to the rate at which data is transferred. For instance, a modem operating at 300 Baud is transferring 300 bits of data per second.

6 ILBM and ACBM are two forms of the Amiga's IFF format for graphics files. ILBM or interleaved bitmap is the more common, ACBM of Amiga contiguous bitmap graphic files are mainly used from AmigaBASIC. MicroEmacs is a mini version of a text editor called (believe it or not!) Emacs.

7 The Amiga Toolkit disk is a disk produced by Commodore which contains lots of useful programs for any serious Amiga user. Included are DiskEd – a disk sector editor, Emacs, ROMWack – a debugging tool for use with the guru and many more. It is available from the UKAUG, on UKAUG PD disk no. 29.

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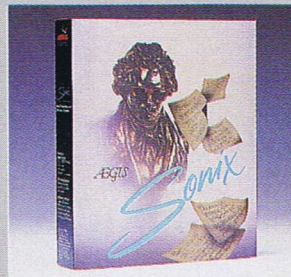
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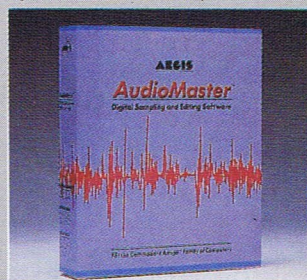
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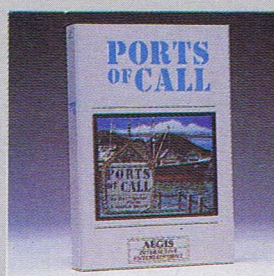
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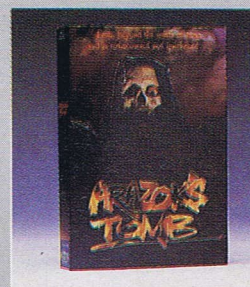


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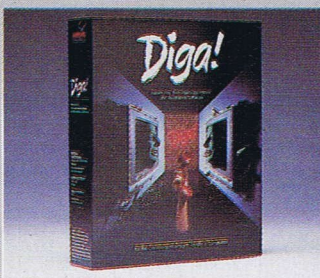
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ANIMATION EFFECTS/STAND

Behind the gloss and glamour of those familiar commercial TV effects lies some pretty impressive and expensive hardware. Peter Lee views two new pieces of software which bring the Amiga closer to the big video league.

The future is already here as far as the Amiga and television are concerned. Using either custom-built software or off-the-peg stuff the computer is doing its bit in the multi-million pound video market. It says a lot for the quality and power of the Amiga that it has so quickly found a foothold in TV stations around the world.

A look at the recent output of Britain's Channel 4 — programmes such as Network 7, the Chart Show and Invisible Television — shows the high level of Amiga performance, so it is hardly surprising to see the field of display manipulation, especially animation, being a real growth area for software. Latest in a booming market of video special FX are these two companions in Martin Hash's budget Animation series.

Animation effects

At the core of the program lies the Flip module. It does some pretty amazing things like sending your image tumbling and spinning through space with shading and highlights emphasised. Multiple objects

can be scripted independently with user control over path of movement, scale, perspective, rotation and pivot plane. The program allows you to create a truly amazing range of powerful and striking sequences.

Each frame of a particular movie (or vignette as they are called) is calculated and rendered and saved to disk in either compacted or IFF form. Playback of condensed images is controlled from another module and in real-time you can see your creation whiz and spin through its paces in a loop, using the function keys to determine playback rate.

In half-an-hour's work you can achieve some very professional effects; it takes you around 5 minutes to work out the script, the rest is taken up with the 68000 processor

"Movement itself is registered in a choreography and the number of frames required to make the transition from one position or aspect to another (called 'skits') is user definable"

calculating all the subtleties of object rendering. Fast it is not! The manual gives a sketchy tutorial to get you started, grudgingly giving you the simplest of screens with just one line of text to practice on. Mattes (the objects you will be manipulating — similar to a brush in Deluxe Paint) are defined from their original paint screen by means of a dragged-out box. The actual designing of the vignette (script) is a rather abstract process; your matte is not

present, simply a blank screen, circles and straight lines showing the object's origin, destination and path. Rotation is visualised by a sort of compass needle which rotates along with mouse movement. Movement itself is registered in a choreography and the number of frames required to make the transition from one position or aspect to another (called 'skits') is user definable.

The flip module features excellent and foolproof editing facilities for adding, deleting or altering items so if you're not happy with an effect, you can try again: trial and error is the only way you're going to get any reasonable results. An hour spent altering perspective, placing your light source or editing the shading parameters pays dividends in the high quality output. But be prepared to sweat a little! If the disk fills up while saving is in progress — and that is very easy to do with longer animations — then be prepared too, to start all over again.

The program comes on a single unprotected disk, accompanied by a well-finished manual. If Martin Hash could write instructions as well as he writes programs there

"The program also allows you to create the simple basic video effects we see on TV every day"

would be no trouble but unfortunately the brevity of his information is a hurdle you just have to overcome to appreciate the finer points of the software. It will work on the A2000, 1000 and 500 but needs a minimum 1 Meg of RAM.



ANIMATION EFFECTS/STAND

The program also allows you to create the simple basic video effects we see on TV every day — wipes, scrolls and fades, using any resolution IFF picture: lo-res, med-res, hi-res, Hold and Modify and interlace and it even has the rare blessing of accepting full-screen PAL images. It

"The program's scroll feature is cleverly implemented; simply load into memory the sequence of frames you need to scroll and control their scroll with the cursor keys"

can be used either in conjunction with any of the other Animate series, or as a stand-alone FX department. The effects you can accomplish with just a little work are very impressive; but The wipe function is really only at its best when used with a Genlock device, allowing two video signals to be merged into one. You load in your IFF picture and then decide which wipe to use to overlay the incoming live signal. Using this function without Genlock produces straightforward wipes of your still picture to the background colour. Available effects include a square wipe, left to right, top to bottom and vice-versa and fade in/out. Control of these effects is through the keyboard; not having Genlock rather limits the usefulness of these features and it's not possible to use a couple of wipes on HAM images. The program's scroll feature is cleverly implemented; simply load into memory the sequence of frames you need to scroll (for instance the credits to a video, or a simulation of panning down a mountain or building for a film) and control their scroll with the cursor keys.

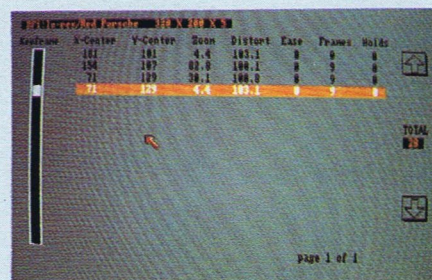
As all the screens are loaded into memory for smooth scrolling, I found I could only get four 32 colour low-res Deluxe Paint screens resident at once but fewer colours would free more memory for more frames. Whatever resolution the initial screen has the remainder must follow suit, which is a bind

considering the usefulness of combining strikingly crisp and intricately drawn interlace frames with standard medium res ones containing simply text. (I'm thinking of your logo followed by credits). You can forget HAM screens too, as they're not supported by scroll. Also worth noting is the fact that successive frames must share an identical palette. A time delay function is also a glaring omission; things move at Mr. Hash's speed. In any event the scroll is flicker-free and on PAL displays it's impossible to see the join, which adds greatly to the professional results obtained. Pity about all those shortcomings though — seems I'll still be keeping the public domain slideshow utility I've used for 12 months...

Animation stand

Another in the Hash family of animation tools, Stand is something of an oddity and carries the same price-tag as Effects, though to my mind it doesn't offer as much. In effect the program allows you to pan across the video screen, zooming in and out; the kind of movement which shows a row of people one at a time, or zooms in to show some significant fine detail. Once again pictures may be in any format — from HAM to PAL — and when the zoom function is selected the program does its best to smooth the jagged edges which can be caused when pixels become magnified. Sometimes it works well but on digitised pictures the results are hit and miss. The vignettes are played back using a separate program, though you can preview frames from within the Stand program. To speed previewing an animation, you can also record it as small as 25% of its true screen size and watch the playback in miniature. The results are pleasing, though it does depend on the kind of art frame you're dealing with as to how successful any script (or vignette) is. The frames generated by the program can be picked in a

similar way to those of Effects and played back very smoothly from 6 to 30 frames per second. Highly detailed frames (such as digitised ones) do exhibit a stilted motion I found, because of their complexity.



This program more than the other should, I think, be used in conjunction with other animation effects, because as a stand-alone unit it is limited in its usefulness. As part of a larger video work I can see a definite place for its novel features. The program is totally mouse-operated and extremely easy to use; for once the manual makes a good job of explaining what's happening. Editing is as straightforward as with Effects and there is an unusual distortion function which lets you expand or squeeze portions of frames.

CONCLUSION

Aimed at the specialist user, these latest additions in the Animation range allow you to create impressive sequences for videos (or just for fun). There are some annoying features in the creation and editing facilities but for all their rough edges, what counts is the finished product — which is marvellous. I guess not having examples on the disk will either make people frustrated, or, as in my case determined to see what's lurking in there somewhere by doggedly experimenting. It's all very well throwing people in at the deep end but not to give them a taste of the program's potential seems mean-minded, especially in the complex world of flips.

By no means a complete animation package, both products add something essential to the arsenal of Amiga animators. If you had to choose just one, Effects offers the best value and results. **P.L.**

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**Justin Jackson
goes on line to
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Compunet is a networking system – using a modem, subscribers around the country phone a local access point which then allows their computer to communicate with the Compunet mainframe in Middlesex England. Both text and programs can be downloaded from the system and users can also put their own software or text on Compunet for others to use. In addition, each subscriber can leave private mail for people or play games such as Federation II or MUD.

Until recently only owners of the Commodore modem could log on to Compunet, keeping it the preserve of 64 and 128 users. Since December, however, Amiga owners have been able to get online using special terminal software and a suitable modem. Software for the IBM PC and compatibles should be available in the near future too.

The Amiga software can be ordered from Compunet, downloaded off a bulletin board or copied from a friend. Getting a disk from Compunet costs £24.95, whereas the latter two methods entail a £19.95 registration fee. Piracy is not possible as the Compunet mainframe checks when you log on to see if you have paid – and if not cuts you off! You will also need a suitable Hayes modem; Compunet are selling them at cost.

The software (written by Ariadne, authors of the Kickstart Guide) certainly makes full use of the Amiga. When you are online, the screen is divided into two windows. One displays the current directory which shows you where you are on Compunet and lists up to eleven items which you can download. Some of these items – known as 'up-loads' – may have a further directory beneath them which

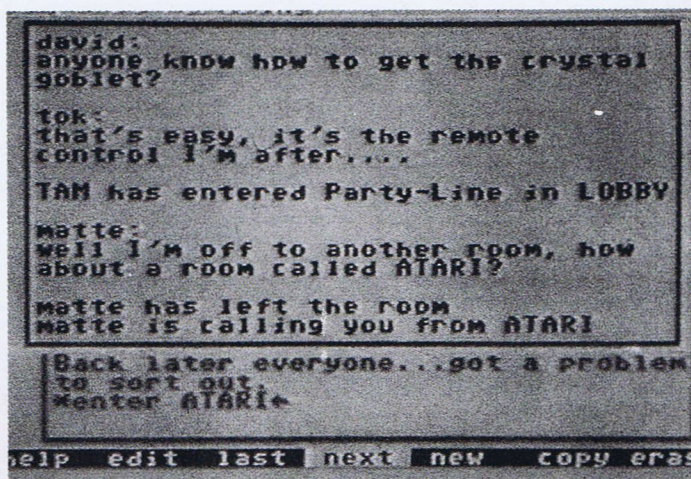
you can access.

The whole of Compunet stems from just one directory – selecting a topic leads you onto another directory with sub-topics and so on until you finally reach the upload you are after. Each upload on the net is numbered, so users may go to it directly if its got is known. The more important uploads can have this number changed to something easier to remember – for example, goto AMIGA for the Amiga area.

Uploads may be either text frames, files (e.g. programs) or IFF pictures. The latter two are simply downloaded from Compunet and saved to disk, although the Compunet software will try and dis-

may directly upload onto most of the system. Uploading is easy; they software handles everything so no expert knowledge is needed. It is also an integral part of Compunet – over 2,5000 uploads were made over the Easter weekend alone. Uploading is carried out using the same software and on the same phone call as doing anything else on the net. No authorisation is necessary either. If privacy is required, then the user may use the mail facility which enables him to send text (NOT files at present) to specific users.

Some of the net is not presented in a rigid frame format, but in a scrolling system. Partyline works like this. You can



play IFF graphics if possible. Text frames are not saved to disk, but displayed in the other window on the screen. They are also copied into your editor, which can be opened and used at any time. Because

"Topics covered on the net are diverse – there are predicably many computing areas, including a large Amiga area and large amounts of software."

Compunet was originally designed for the 64, it uses the 64 character set – all the other machines emulate this fully and so there are no restrictions there.

As well as downloading, subscribers

link to Partyline and 'talk' to other users who are on at that time. As well as just being able to chat, there are a number of commands at your disposal.

Text is usually preceded by the user's ID, but this can be changed with an alias command. This does not affect your ID in any way. In addition, users may create rooms which they can enter and so talk privately. Some new features which should be available shortly include the ability to create a locked room so you can choose who you admit and an ignore command in case somebody is being stupid! Finally, users can leave messages on a noticeboard which can be read by all. Using Partyline will cost you £1 an hour.

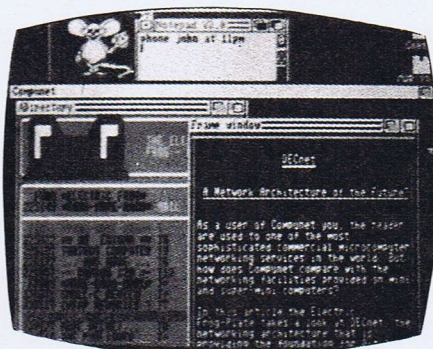
The scrolling format is also used for MUGS – adventure games where instead of just playing against the compu-

AMIGA ON COMPUNET

ter you also compete with other netters who may be using the MUG at that time! Needless to say, they are highly addictive. Compunet currently has Federation II on offer, which is set in space. MUG will return some time (it is currently being recorded). Use of a MUG will cost you £1.75 an hour.

So, what is there on Compunet? Anything that the users think should be! Very little comes from Compunet who concentrates on indexing, laying the framework for new areas and general housekeeping on the database, although they will support users if the venture is worthwhile. Of course, if the staff come across a piece of software which catches their eye then within a few days it will be on the net... There are now over 150 Amiga programs on the system which have been uploaded either by users on Compunet. Not a bad system which have been uploaded either by users or Compunet. Not a bad total considering the machine has only been online three months!

Topics covered on the net are diverse – there are predictably many computing areas, including a large Amiga area and



large amounts of software. Other subjects get a look in too, however, and range from centre-ground politics and sport to horror stories and humour. The biggest directory is Metnet, which is the largest amateur weather database in Europe.

One aspect of the network which should not be missed is the Compunet demo. These started a few years back and have evolved from simple hi-res pictures to animated displays with music hacked from games. Most demos are coded for the 64, although the first few Amiga demos written by netters are beginning to arrive. Some people are offered contracts by companies who have seen their work on Compunet.

Most users will only have to pay local phone rates to use Compunet – there are now around 70 nodes throughout the U.K. and in Dublin. Access can also be via PSS. On top of this, Compunet make a small additional charge to cover networking, although great savings can be made by paying just under £10 a quarter for free access – then you only have to watch you 'phone bill! There usual type of subscription comes in at £15 a quarter.

Compunet's strong point is definitely the way the user is involved – practically all areas on the net are run by subscribers, albeit with a little support from Compunet in the way of free gotos and banners. Anybody can start up their own spot, although they may need to splash out £10 for unlimited uploading once their free pages have run out. Anyone thinking of starting a bulletin board should think strongly about setting up on Compunet instead...

J.P.J.

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THREEWAY

Rod Blunt

A noughts and crosses game for the Amiga may seem a little trivial in view of the Amiga's amazing power. Rod Blunt, however, has come up with a three dimensional version that you might never defeat!

The program is a version of noughts and crosses, played in 3 dimensions. It is mouse operated and uses the speech facility of the Amiga; brief instructions are included in the program.

REM THREEWAY by R.Blunt Nov. 1987 (AV1)

```
Initialise:
SCREEN 1,320,240,2,1
WINDOW 2,,,16,1
DIM L(27),CL(27),CC(27),P(3000)
WC=0:WP=0:GA=0:DR=0:N=0:G=0:M=0
RANDOMIZE TIMER
CLS

Grid:
PAINT (2,2),2,1
LINE(23,115)-(23,163)
LINE(47,115)-(47,163)
LINE(71,115)-(71,163)
LINE(95,115)-(95,163)
LINE(23,115)-(95,115)
LINE(23,131)-(95,131)
LINE(23,147)-(95,147)
LINE(23,163)-(95,163)
AREA(23,115)
AREA(47,107)
AREA(111,107)
AREA(111,155)
AREA(95,163)
AREA(95,115)
AREA(23,115)
AREAFILL
GET (23,107)-(111,163),P
PUT (119,83),P,PSET
PUT (215,59),P,PSET

Screenpanel:
LINE (5,42)-(306,178),,B
PAINT (2,180),3,1
COLOR 1,2: LOCATE 2,16:PRINT " "
PRINT TAB(15) " THREEWAY "
PRINT TAB(16) " "

Scoreboard:
COLOR 0,3
LOCATE 24,2
PRINT TAB(3)"GAMES PLAYED  -"
PRINT TAB(3)"PLAYER WINS  -"
PRINT TAB(3)"COMPUTER WINS -"
PRINT TAB(3)"DRAWN GAMES  -"
COLOR 0,1
LOCATE 24,23:PRINT "HEADS"SPC(3) " "
LOCATE 25,31:PRINT " START "
LOCATE 26,23:PRINT "TAILS"SPC(3) " "
LOCATE 29,3:PRINT "QUIT"SPC(3)"CLEAR SCORES"SPC(4)"INSTRUCTIONS";
GOSUB Score

SAY "DHRIY9WEY9 IHZ NAW8 REH6DIY."
SAY "PLIY4S KLH8K AAGN IHNSTRAH6KSHAH6NS, OHR AA4N STAA9RT."

Gadgetchoose:
MO=HOUSE(0)
Mousecheck1:
IF MOUSE(0)=0 THEN Mousecheck1
MX=HOUSE(3):MY=HOUSE(4)
IF MX<240 AND MX<297 AND MY>184 AND MY<208 THEN Startgame
IF MX>72 AND MX<169 AND MY>224 AND MY<233 THEN
GA=0:WP=0:WC=0:DR=0:GOSUB Score
END IF
IF MX>200 AND MX<297 AND MY>224 AND MY<233 THEN GOSUB Instructions
IF MX>16 AND MX<50 AND MY>224 AND MY<233 THEN
SCREEN CLOSE 1:CLAE:END
END IF
GOTO Mousecheck1

Startgame:
COLOR 1,0
LOCATE 24,31:PRINT " "
```

```
PRINT TAB(31)" PLAY! "
PRINT TAB(31)" "
COLOR 1,2
FOR j=1 TO 27
READ A,B,C
L(j)=A:CL(j)=B:CC(j)=C
LOCATE B,C:PRINT " "
NEXT j
FOR j=0 TO 8:READ A:VoiceX(j)=A:NEXT

REM Block 6 positions
LOCATE CL(14),CC(14):PRINT "X":X=0

Randomblank:
bi=INT(RND*27)+1:IF bi/2=INT(bi/2) THEN Randomblank
FOR j=1 TO 27
IF bi=j AND L(j)=0 THEN LOCATE CL(j),CC(j):PRINT "X":L(j)=4:x=x+1
NEXT j
IF x<5 THEN Randomblank

Choosecoin:
SAY "CHUW4Z /HEH6DZ OHR TEY5LZ."
MO=HOUSE(0)
Mousecheck2:
IF MOUSE(0)=0 THEN Mousecheck2
MX=HOUSE(3):MY=HOUSE(4)
IF MX>168 AND MX<225 AND MY>184 AND MY<193 THEN
T=1:LOCATE 24,22:COLOR 0,3:PRINT ">"SPC(5)"<":GOTO Tosscoin
END IF
IF MX>168 AND MX<225 AND MY>200 AND MY<209 THEN
T=2:LOCATE 26,22:COLOR 0,3:PRINT ">"SPC(5)"<":GOTO Tosscoin
END IF
GOTO Mousecheck2

Tosscoin:
y=0:j=(10+INT(10*RND))
Flip:
COLOR 1,0:GOSUB Headprint:IF y=j THEN TT=1:GOTO Firstgo
FOR x=1 TO 1000:NEXT:y=y+1
COLOR 0,1:GOSUB Headprint
COLOR 1,0:GOSUB Tailprint:IF y=j THEN TT=2:GOTO Firstgo
FOR x=1 TO 1000:NEXT:y=y+1
COLOR 0,1:GOSUB Tailprint
GOTO Flip

Headprint:
LOCATE 24,23:PRINT "HEADS"
RETURN

Tailprint:
LOCATE 26,23:PRINT "TAILS"
RETURN

Firstgo:
IF T=TT THEN
SAY "IHATS YUW7 TUW STAA6RT.":FOR j=1 TO 2000:NEXT
GOSUB Clearchoice:GOTO Playerchoice
END IF
IF T<>TT THEN
SAY "AY6 GOW FER7ST.":FOR j=1 TO 2000:NEXT
k=0:GOSUB Clearchoice:GOTO Compchoice
END IF

Clearchoice:
COLOR 0,3:LOCATE 24,22:PRINT " ":COLOR 0,1:PRINT "HEADS";:COLOR 0,3:PRINT
LOCATE 26,22:PRINT " ":COLOR 0,1:PRINT "TAILS";:COLOR 0,3:PRINT " "
COLOR 1,0
RETURN

Nextgo:
IF k=0 THEN SAY "YOHR GOW.":k=1:GOTO Playerchoice
IF k=1 THEN SAY "YOHR TER4N AXGEH3N.":k=0
```

THREEWAY

```

Playerchoice:
MO=MOUSE(0)
Mousecheck3:
IF MOUSE(0)=0 THEN Mousecheck3
MX=MOUSE(3):MY=MOUSE(4)
IF MX>27 AND MX<45 AND MY>115 AND MY<133 THEN j=1:GOTO Move
IF MX>51 AND MX<69 AND MY>115 AND MY<133 THEN j=2:GOTO Move
IF MX>75 AND MX<93 AND MY>115 AND MY<133 THEN j=3:GOTO Move
IF MX>27 AND MX<45 AND MY>131 AND MY<149 THEN j=4:GOTO Move
IF MX>51 AND MX<69 AND MY>131 AND MY<149 THEN j=5:GOTO Move
IF MX>75 AND MX<93 AND MY>131 AND MY<149 THEN j=6:GOTO Move
IF MX>27 AND MX<45 AND MY>147 AND MY<165 THEN j=7:GOTO Move
IF MX>51 AND MX<69 AND MY>147 AND MY<165 THEN j=8:GOTO Move
IF MX>75 AND MX<93 AND MY>147 AND MY<165 THEN j=9:GOTO Move
IF MX>123 AND MX<141 AND MY>91 AND MY<109 THEN j=10:GOTO Move
IF MX>147 AND MX<165 AND MY>91 AND MY<109 THEN j=11:GOTO Move
IF MX>171 AND MX<189 AND MY>91 AND MY<109 THEN j=12:GOTO Move
IF MX>123 AND MX<141 AND MY>107 AND MY<125 THEN j=13:GOTO Move
IF MX>147 AND MX<165 AND MY>107 AND MY<125 THEN j=14:GOTO Move
IF MX>171 AND MX<189 AND MY>107 AND MY<125 THEN j=15:GOTO Move
IF MX>123 AND MX<141 AND MY>123 AND MY<141 THEN j=16:GOTO Move
IF MX>147 AND MX<165 AND MY>123 AND MY<141 THEN j=17:GOTO Move
IF MX>171 AND MX<189 AND MY>123 AND MY<141 THEN j=18:GOTO Move
IF MX>219 AND MX<237 AND MY>67 AND MY<85 THEN j=19:GOTO Move
IF MX>243 AND MX<261 AND MY>67 AND MY<85 THEN j=20:GOTO Move
IF MX>267 AND MX<285 AND MY>67 AND MY<85 THEN j=21:GOTO Move
IF MX>219 AND MX<237 AND MY>83 AND MY<101 THEN j=22:GOTO Move
IF MX>243 AND MX<261 AND MY>83 AND MY<101 THEN j=23:GOTO Move
IF MX>267 AND MX<285 AND MY>83 AND MY<101 THEN j=24:GOTO Move
IF MX>219 AND MX<237 AND MY>99 AND MY<117 THEN j=25:GOTO Move
IF MX>243 AND MX<261 AND MY>99 AND MY<117 THEN j=26:GOTO Move
IF MX>267 AND MX<285 AND MY>99 AND MY<117 THEN j=27:GOTO Move
GOTO Mousecheck3

Move:
IF L(j)>0 THEN
  SAY "DHAE7TS AEN IHLIY6GAHL MUW4V. TRAY AXGEH4N.":GOTO Playerchoice
END IF
COLOR 1,2:LOCATE CL(j),CC(j):PRINT "X":L(j)=2
N=N+1

Compchoice:
z=1:IF N<3 THEN z=4
IF N<1 THEN z=6
Nextcheck: RESTORE Linedata
IF N=1 THEN FOR j=1 TO 24:READ A,B,C:NEXT j
Lineread: READ A,B,C:IF A<0 THEN z=z+1:IF z<8 THEN Nextcheck
GOSUB Linecheck:IF M>0 THEN Movedone
GOTO Lineread
Movedone: ON M GOTO Playerwin,Compwin,Drawgame
N=N+1:IF N>20 THEN Drawgame
M=0:GOTO Nextgo

Playerwin:
SAY "YUW6 WIH4N."
WP=WP+1:G=2:GOTO Endgame

Compwin:
SAY "AY9 WIH4N."
WC=WC+1:G=1:GOTO Endgame

Drawgame:
SAY "DHAX GEY4M IHZ DRAQ4N."
DR=DR+1:G=0

Endgame:
GA=GA+1
GOSUB Score

Flashwin:
IF G=0 THEN Newgame
IF G=1 THEN Ws="O"
IF G=2 THEN Ws="X"
FOR z=1 TO 6
  COLOR 2,2:GOSUB Cycle
  COLOR 1,2:GOSUB Cycle
NEXT z

Newgame:
COLOR 0,1
LOCATE 24,31:PRINT " "
PRINT TAB(31)" START "
PRINT TAB(31)" "
Speechs="KLIH8K STAA4RT FOHR AHNAH3DHER GEY4M."
SAY Speechs,Voice%
RESTORE:N=0:G=0:M=0:GOTO Gadgetchoose

Cycle:
LOCATE CL(A),CC(A):PRINT Ws:LOCATE CL(B),CC(B):PRINT Ws
LOCATE CL(C),CC(C):PRINT Ws
FOR j=1 TO 1000:NEXT j
RETURN

Score:
COLOR 0,3
LOCATE 24,18:PRINT GA
PRINT TAB(18)WP
PRINT TAB(18)WC
PRINT TAB(18)DR
COLOR 1,0
RETURN

```

```

Linecheck: REM S/R to exam. lines & react
COLOR 1,2
ON z GOTO XXX,OOS,XXS,OSS,XSS,SSS,Draw
XXX:
IF L(A)=2 AND L(B)=2 AND L(C)=2 THEN M=1
RETURN
OOS:

IF L(A)=1 AND L(B)=1 AND L(C)=0 THEN
  LOCATE CL(C),CC(C):PRINT "O":L(C)=1:M=2:RETURN
END IF
IF L(A)=1 AND L(C)=1 AND L(B)=0 THEN
  LOCATE CL(B),CC(B):PRINT "O":L(B)=1:M=2:RETURN
END IF
IF L(B)=1 AND L(C)=1 AND L(A)=0 THEN
  LOCATE CL(A),CC(A):PRINT "O":L(A)=1:M=2:RETURN
END IF
RETURN
XXS:
IF L(A)=2 AND L(B)=2 AND L(C)=0 THEN
  LOCATE CL(C),CC(C):PRINT "O":L(C)=1:M=4:RETURN
END IF
IF L(A)=2 AND L(C)=2 AND L(B)=0 THEN
  LOCATE CL(B),CC(B):PRINT "O":L(B)=1:M=4:RETURN
END IF
IF L(B)=2 AND L(C)=2 AND L(A)=0 THEN
  LOCATE CL(A),CC(A):PRINT "O":L(A)=1:M=4:RETURN
END IF
RETURN
OSS:
IF L(A)=1 AND L(B)=0 AND L(C)=0 THEN
  LOCATE CL(C),CC(C):PRINT "O":L(C)=1:M=4:RETURN
END IF
IF L(A)=0 AND L(B)=1 AND L(C)=0 THEN
  LOCATE CL(C),CC(C):PRINT "O":L(C)=1:M=4:RETURN
END IF
IF L(A)=0 AND L(B)=0 AND L(C)=2 THEN
  LOCATE CL(B),CC(B):PRINT "O":L(B)=1:M=4:RETURN
END IF
RETURN
XSS:
IF L(A)=2 AND L(B)=0 AND L(C)=0 THEN
  LOCATE CL(B),CC(B):PRINT "O":L(B)=1:M=4:RETURN
END IF
IF L(A)=0 AND L(B)=2 AND L(C)=0 THEN
  LOCATE CL(A),CC(A):PRINT "O":L(A)=1:M=4:RETURN
END IF
IF L(A)=0 AND L(B)=0 AND L(C)=2 THEN
  LOCATE CL(B),CC(B):PRINT "O":L(B)=1:M=4:RETURN
END IF
RETURN
SSS:
IF L(A)=0 AND L(B)=0 AND L(C)=0 THEN
  LOCATE CL(A),CC(A):PRINT "O":L(A)=1:M=4:RETURN
END IF
RETURN
Draw:
M=3
RETURN

Instructions:
WINDOW 3,,(8,44)-(304,220),16,1
PAINT (100,100),1
COLOR 0,1
LOCATE 2,9:PRINT "THREEWAY INSTRUCTIONS"
PRINT
PRINT " Threeway is a noughts and crosses"
PRINT " game played in three dimensions."
PRINT
PRINT " Six of the twenty seven possible"
PRINT " positions are blanked off, always"
PRINT " including the central location."
PRINT
PRINT " Follow spoken instructions, using"
PRINT " left mouse button to make choices."
PRINT
PRINT " The computer plays noughts and you"
PRINT " play crosses."
PRINT
PRINT " Note that panel gadgets are only"
PRINT " active before starting a new game.:"
PRINT :PRINT
PRINT " CLICK MOUSE TO RETURN TO"
PRINT " GAME SCREEN"
MO=MOUSE(0)
Mousecheck4:
IF MOUSE(0)<1 THEN Mousecheck4
WINDOW CLOSE 3
RETURN

Matrixdata:
REM Subscript data - matrix & cursor position
DATA 0,16,5,0,16,8,0,16,11
DATA 0,18,5,0,18,8,0,18,11
DATA 0,20,5,0,20,8,0,20,11
DATA 0,13,17,0,13,20,0,13,23
DATA 0,15,17,4,15,20,0,15,23
DATA 0,17,17,0,17,20,0,17,23
DATA 0,10,29,0,10,32,0,10,35
DATA 0,12,29,0,12,32,0,12,35
DATA 0,14,29,0,14,32,0,14,35

Voicedata
DATA 110,0,150,0,22200,64,10,1,0

Linedata:
DATA 1,4,7,2,5,8,3,6,9,12,15,18,21,24,27,20,23,26,19,22,25,10,13,16,1,2,3
DATA 4,5,6,7,8,9,10,11,12,16,17,18,19,20,21,22,23,24,25,26,27,1,10,19
DATA 4,13,22,7,16,25,2,11,20,8,17,26,3,12,21,6,15,24,9,18,27,1,5,9,3,5,7
DATA 19,23,27,21,23,25,1,13,25,19,13,7,3,15,27,21,15,9,1,11,21,3,11,19
DATA 7,17,27,9,17,25,-1,-1,-1

```

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X-CAD

Can the Amiga compete with dedicated CAD workstations costing many times the price? John Walker examines a package that professes to enable the Amiga to do just that.

The Amiga has already gained a foothold in the business world through its dazzling desktop video displays, where it can outperform IBM PCs and Macintosh IIs at much lower costs. Now, following the release of Taurus Impex's X-CAD, a two-dimensional design and drafting program, it may well move into another graphics-intensive area, that of Computer Aided Design.

X-CAD provides facilities that would be hard to match elsewhere for the price. It pushes the Amiga to its limits and makes it into a powerful, inexpensive CAD workstation that will certainly be worth considering by engineering and architectural draughtsmen.

Making the most of the Amiga's graphics capabilities, X-CAD performs with commendable speed and is easy to use, since it automates the design process as much as possible.

X-CAD is contained on two unprotected disks but has that most wretched of protection devices, the dongle. The problem with dongles is that without them you cannot carry out such necessary acts as saving or printing your work and the ways of losing a dongle are legion.

X-CAD's manual, unlovely in appearance and un-indexed, is however comprehensive. There is an exhaustive listing of the manual's contents but that is no substitute for a proper index. It also contains spelling mistakes, as does the program – as you can discover by calling up something called "Palette". X-CAD's palette uses a maximum of eight user-defined colours.

X-CAD requires a 512K Amiga with a 1.2 Kickstart, a second disk drive, at least 1.5 Mbytes of memory expansion and a long persistence phosphor monitor since it uses the Amiga's interlaced mode that has an unacceptable flicker on normal monitors.

Taurus recommends that it should be used with at least 2 Mbytes of expanded memory and a 20 Mbyte hard disk to prevent disk-swapping. It is compatible

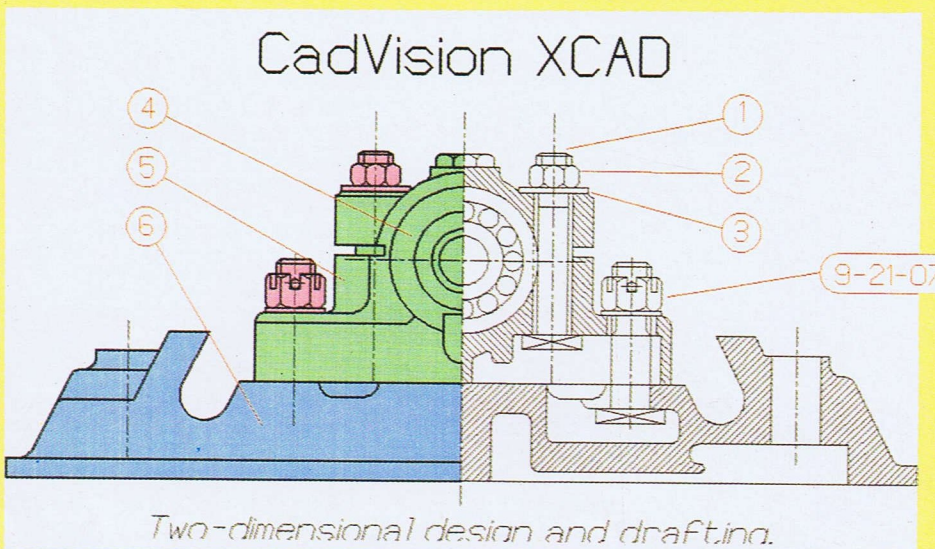
with the Cherry graphics tablet and can produce high resolution hard copy.

Three concepts give X-CAD its power – its text-based command structure, its viewports which are effectively drawings within drawings and its layers, the equivalent of transparent overlays which overcome the problem of one part of a drawing obscuring another.

on screen to mark the spots.

The normal display consists of a large central window in which the drawing is done and smaller windows at the top or bottom of the screen. You can type in commands in the bottom window, much as you would in that other graphics language – LOGO.

The top window contains a series of



X-CAD is not a straightforward drawing program. Instead it uses its own graphics language, consisting of English words, which comes close to the format of simple adventure games – each command expects a minimum of a verb followed by a noun, such as DRAW Line.

You draw by issuing a series of commands. The position of on-screen co-

"Each command expects a minimum of a verb followed by a noun, such as DRAW Line"

ordinates can also be indicated by moving the mouse or graphics tablet pointer and clicking. A small "x" then appears

small boxes each of which contains a verbal command. These can be selected by using the mouse or the pointer on a graphics tablet. Such action usually brings up another menu of boxes containing a list of nouns applicable to the verb you have selected.

Using the mouse is best for those not familiar with the program or still uncertain about its capabilities. Those who know its commands and command structure will probably find it easier to use the keyboard.

One great advantage is that commands can be input from a text file and such files can be nested, with one file calling another. Files can be written and edited using ED, one of the Amiga's text editors, or by using AMIGA BASIC, if you need input that requires calculation.

X-CAD

It is thus simple to change a drawing simply by editing the text file of its commands. By using the "Open Journal" command you can save an on-screen drawing as a text file.

X-CAD uses the concept of a viewport to overcome one of the main difficulties of Computer Aided Design: relating the size of your drawing to the size of the screen.

A plan itself can be one of 15 standard sizes, using ISO sizes from A0 to A4 (which ranges from 1189mm x 841mm to 210 x 297mm), British standard sizes B1 (39.5 x 27.75ins) to E (44 x 34ins). If that is not sufficient you can enter the height, width and units of measurement for any size.

"You can have a viewport of an enormous size – say 50 x 50 metres – within a C sized sheet"

These measurements can be in centimetres to kilometres, or inches to miles. The default setting is inches and the default size is an ANSI C sheet of 22 x 17 inches.

The sheet of paper on which the drawing will be printed corresponds to one viewport. Once its size is chosen it is fixed and cannot be changed. You must do all your work within this viewport, but

overcomes the problems of scaling down a drawing to fit the sheet. Only one viewport can be active at a time but up to 32 can be displayed simultaneously on the screen. You can also scroll around a drawing and zoom in to an area within it to magnify it.

The whole program can be customised. Using a separate program you can create your own menus to carry out the operations you require. This can either be on-screen, where it is accessed by the mouse, or form part of a graphics tablet so that functions can be selected with an electronic pen or puck.

It is impossible, within the space of this review, to list all X-CAD's drawing functions but they are very comprehensive, covering lines drawn at any angle or the perpendicular, tangents, rectangles, circles, arcs, polygons, cross-hatching in many styles, pattern fills and the rest. You can call up a grid of a specified size as an aid to drawing. Apart from these supplied shapes and extensive drawing commands, graphics symbols can be created by using X-CAD's drawing commands and then saved to disk. When using them again it is possible to re-scale them, place them at angles or flip or reverse them.

Once drawn, all graphics can be edited – to make them longer or shorter, to copy, mirror, move, rotate, scale or stretch them. You can draw a window in any part of the screen and stretch its contents.

Text is also composed of lines and

drawings in up to 256 layers and allows you to copy or move parts of your drawing from one layer to another. Each layer can be thought of as a separate transparent overlay.

Using layers you can ensure that the plan remains clear, with particular detail –



such as electrical wiring of a room – being confined to one layer which can either be viewed or removed from view. Or you can have your textual annotations on a different layer to the graphics.

The program also allows you to use eight depths of drawing so that you can ensure that the correct part is in front when shapes overlap each other.

X-CAD has its own drivers to provide a print-out in up to seven colours. Included are plotter drivers for the Houston Instrument DMP range, the Hewlett Packard range, the Kyocera laser printer and compatibles, and the Roland range. It also supports Epson dot-matrix printers, the Mitsubishi G500 colour-thermal printer, Xerox 4020 colour inkjet and HP LaserJet Plus and compatibles.

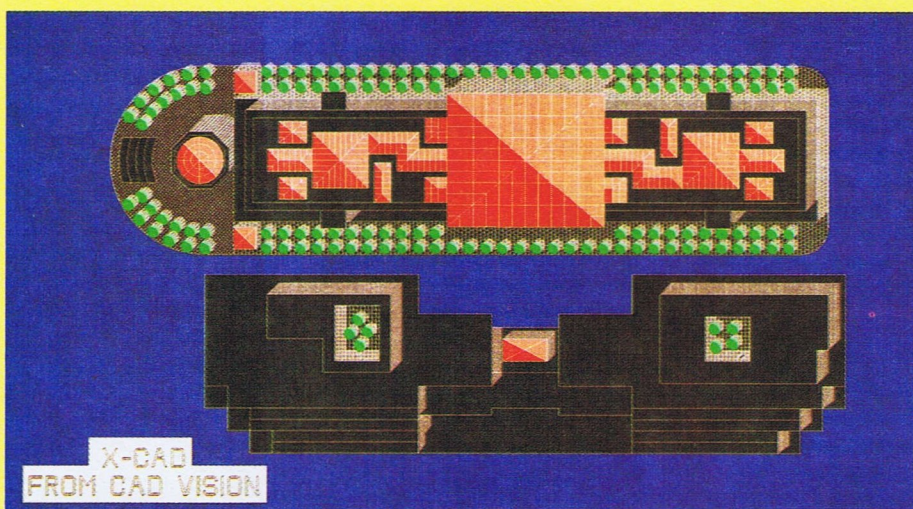
You can also dump an on-screen drawing, using the Amiga's 1.2 Preferences printers or save it as an IFF picture file.

A minor niggle is that if you use the CLI (Command Line Interface) many usual commands will not work because they have been removed from X-CAD's prog-

"Graphics symbols can be created by using X-CAD's drawing commands and then saved to disk"

ram disk. Only Assign, CD, Copy, Echo, Endcli, LoadWb, MakeDir, Path, Run and Stack remain. Nor does X-CAD make use of the friendly Amiga interface, which may bother those already familiar with the computer and possibly makes file management harder than it should be. However, I imagine the program is more likely to appeal to those who will buy an Amiga specifically to use with the X-CAD and may not be primarily interested in its other capabilities. For them, X-CAD plus an Amiga should prove all that they need for reaching an advanced level of Computer Aided Design.

J.W.



you can also have up to 31 other viewports within the sheet which can be scaled independently of the sheet itself.

So you can have a viewport of an enormous size – say 50 x 50 metres – within a C sized sheet. This method

arcs so that it can be created at any height, width or angle – either using the program's predefined fonts or ones that you create.

Most powerful is X-CAD's concept of layers, which enables you to construct

Graduate from black and white

to Colour!

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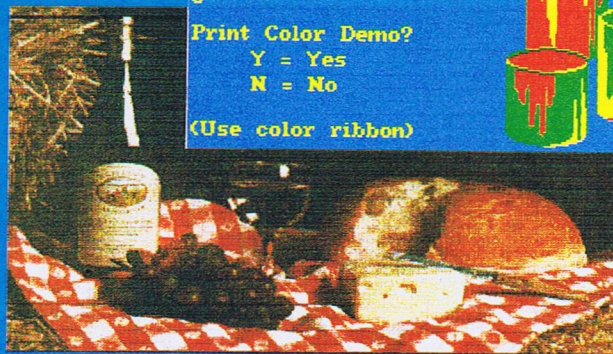
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Print Color Demo?

Y = Yes

N = No

(Use color ribbon)



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THE WRATH OF NIKADEMUS

S.S.I.

Third in the popular Phantasie series from Strategic Simulations Inc., comes *The Wrath of Nikademus*, a game that I am pleased to tell you is even greater in scope and depth than its two predecessors.

The dark Lord Nikademus has really let ambition go to his wizened head this time. No subjugation of a mere island for him — nothing less than world domination will now satisfy his evil bent.

"What brave fool dare go against him?", I hear you cry. "Guess who, oh asker of silly questions", I reply. Yes, it's save the world time again, readers, with you pitting your puny strength and wits and that of your willing band of half a dozen hand picked trusties against the wicked wiles and malevolent might of nasty Nik.

The mixture is largely as before — explore a vast country, collect objects, battle with bogeymen (and bogeybeasts), acquire knowledge and win the day against the forces of evil.

The graphics are much improved, far more detailed, colourful and lifelike than in the earlier games, a factor which adds considerably to the fantasy atmosphere (there's nothing worse than seeing a one-inch high matchstick man supposedly representing a hero you imagined was as big and strong as Daley Thompson).

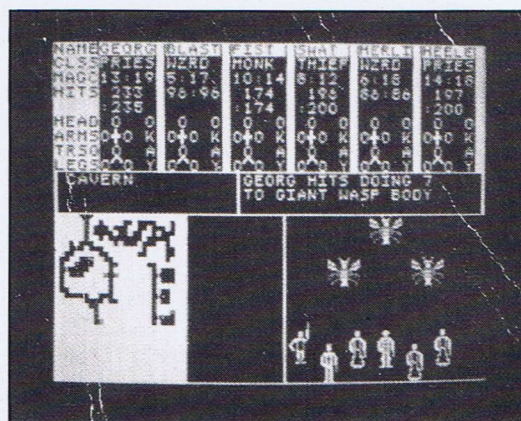
You may choose your band of adventurers from a wide range of races including humans, dwarves, elves, gnomes, halflings, or even a random race like lizard men, ogres, orcs, trolls and goblins (not very likeable, the randoms, and as they have a low charisma rating, tend to hang back in the near rooms of inns).

With certain exceptions, each member can be from the class of priest, monk, ranger, thief, fighter or wizard and all have an attribute rating for strength, intelligence, dexterity, constitution and charisma. An adventurer also has skills that enable him or her to attack, parry, listen, swim, spot traps, disarm traps, find items, pick locks and fire a bow and arrow.

Banking and trading are essential elements of this type of game as are spell learning and casting and fighting. Spells are numerous and range from healing and confusing to flamebolting and mindblasting. When fighting, a number of options are at your band's disposal including being able to thrust, slash, lunge, aim and parry.

A wide variety of nasties roam the country — among the least pleasant are king cobras, high demons, wraiths and (yuk!) drip slime. Not all you meet is necessarily bad — baby dragons, lesser wizards and troll babies are quite nice, really. Well, some people like them anyway.

The terrain consists of towns, dungeons, inns, paths, deserts, grasslands, forests, mountains, lakes, etc., while the dungeons themselves contain doors (secret and otherwise), corridors, rooms and interesting items.



There are a number of less than superficial differences between this game and the two preceding Phantasie games. For example, here the characters have a social class (peasant, labourer, craftsman or noble). Bows have replaced rocks as the range weapon and every character has a number of body locations (head, torso, left leg, etc.) which may be ok, injured, broken or (gulp) gone!

Healing spells and potions can thus affect body parts as well as hit points while different weapons have different chances to hit the various limbs. Spells, too, may affect a particular part of the body.

In combat, an adventurer can adopt one of three positions — forward, middle and (this is me, folks) back. Your chances of being hit are clearly greater if you are the bold soul at the front of the group but equally you have a better chance there of duffing up a monster.

The Wrath of Nikademus has better graphics, sound and gameplay than any of its ancestors so if you are a fan of strategic fantasy games, you are going to lap this one up. And if you have never tried one, you could not do better than to start with this. So what are you waiting for — get out there and save the world.

B.C.
Price: £24.99

VoiceBox

We could call this column 'In My Opinion' – it is one man's – or woman's – individual view of the Amiga Dimension and may well not in anyway accord with that of AUI. This month the VoiceBox is picked up by Bill Donald who has been involved with Commodore computers for more years than any of us cares to remember. Author of one of the first – and most successful – books on the Amiga, he has seen its fall and rise from sufficiently close quarters to be healthily sceptical of all the hype and all the illusions of the computer world – and yet remain one of the Amiga's most loyal fans.

Well here I am back in the UK after a year in Chicago working for Lattice, that well known purveyor of C compilers and programming tools. In addition to becoming an avid Chicago Bears fan, I discovered that this fair city is not the black hole of iniquity that history portrays it. It really is a very pleasant place and those Chicagoans really looked after me – thanks, Mike N., Tom P., Russ S., John M. and Lene S.

OK, so what's new? Well the first thing I see on my return to the UK is the launching of two new Amiga-dedicated magazines. What do I think? More of that anon.

I have to admit that Commodore really do build their hardware properly if my kit is anything to go by. One of the last tasks I did before sending my trusty A1000 across to Chicago was to back up the hard disk. On arrival there, everything and I mean everything worked immediately on power-up. Even the hard disk was intact and the backup disks were not required. On my return back here, the same thing. No hardware problems, and the hard disk was still intact. Still, I learned my lesson the wrong way with hard disk backups. The power supply in the USA has more spikes than a hedgehog's back. I'm now quite a firm believer in regular backups. Besides, I saw too many programmers sobbing at their desks – the result of hard disk crashes resulting in total loss of the hard disk contents.

I managed to attend the Amiga developers meeting in Stevenage during April. This provided me with an opportunity to see some familiar faces, most of whom were keeping the hotel bar staff busy. It seems that one useful property in the developer's world is a capacity to

consume vast quantities of alcohol and still remain coherent. Gail Wellington graced the proceedings and remarked that she felt happy to be in her 'spiritual home'. I was not quite certain if she was speaking metaphorically about the UK or just making a passing mention of fumes emanating from the drinkers.

One of the activities I was involved with, other than exercising my beer drinking elbow was as a speaker. My subject was one close to my heart, namely that of software documentation. I've decided to start a competition with a prize to be given at the end of the year for the WORST SOFTWARE DOCUMENTATION. The rules are quite simple – it must be for Amiga and it must be in English, or some form thereof. Send photocopies of relevant page(s) to me c/o AUI marked 'Documentation'. We will publish the best of the worst in the December issue and present the winning software house with an award.

Stevenage also revealed some of Commodore's hardware plans for 1988. The most interesting was the revelation of the Amiga 2500UX. This is a combination of an Amiga and a UNIX system in the same box. It seems to me that the level of support provided by Commodore UK just about covers the Commodore 64, let alone the Amiga. I dread to think of the support (sic) they are capable of providing for a UNIX box. Mind, in all fairness, ever tried getting any sense out of the Atari UK? THEY make Commodore UK look like IBM in terms of technical ability and organisation.

The hot news from the USA is the imminent arrival of the Video Toaster. This has to be seen to be believed and makes many of the previous graphics abilities of the Amiga look like a kid's crayon book. More details as they become available.

Most readers will be aware of BIX, the vast bulletin board run by McGraw-Hill. The usual complaint of excessive cost's are usually mentioned in the same breath. It's not even cheap in the USA – on current exchange rates it costs a USA subscriber £1.00 for 10 minutes connect time. McGraw-Hill are certainly raking in the cash on this one. What happened to the plans for UK access nodes?

One piece of controversy raging just as I left, revolved around the famous Fish public domain disks. It seems that someone had provided a disk full of FORTRAN code which entailed the usage of the run-time libraries from Absoft's FORTRAN compiler. In case you weren't aware of it, this is a negative feature of Absoft FORTRAN, the code won't run

without these run-time libraries. Apparently the Absoft software licence does not permit the distribution of these libraries. Thus the disk(s) could not be distributed into the public domain. Seems to me, that this is rather short-sighted of Absoft since PD is an excellent way of popularising a language. Apart from the fact their FORTRAN compiler is grossly over-priced in relation to the hardware, locking the run-time libraries to the binary code is just lousy programming on their part. Lattice, Manx, True-Basic, JForth are just a few language vendors who manage to provide compilers that are free of such silly, inane restrictions.

Those new magazines – what do I think? Well Amiga Computing looks like a typical Database Publishing clone. I bet you could do a global search on the word 'Amiga' and replace with the computer of your choice – please select from the following: A) Atari ST B) Amstrad 1512 C) Archimedes D) Sinclair Spectrum. And as for the contents – WordPerfect and Superbase Personal are hardly the newest and hottest pieces of software around. Or didn't anyone tell you guys that? Some of the prose leaves something to be desired:

"The 1.3 Preference program has been enhanced to provide better support for the new types of printers, and the nice ways of printing colour graphics that the new printer drivers are now supporting." It gets worse. The third paragraph on page 79 contains no less than 72 words and not a full stop in sight!!

'I've decided to start a competition with a prize to be given at the end of the year for the Worst Software Documentation.'

I'll do a deal with you Jeremy – I'll stick to writing if you promise to stay in programming. **'....commands resident so that they are remembered in memory...'** Oh really, and you are charging £1.95 for 2nd form English. My summary of Amiga Computing is that it is a Parson's Nose of a magazine. Unfortunately you have to search really hard for ANY good bits. Recommendation – 'must try much harder to match the other boys in his form.'

Your Amiga looks as though it cost all of £0.37 to produce and has the contents to match. Your Commodore the sister magazine never had much to offer to begin with and this latest offspring looks like following the same course. We shall see.

B.D.

```
REM Custom Screen
w = 320: h = 200: d = 5

AvailRam% = FRE(-1)
NeededRam% = ((w/8)*h*(d+1))+5000
```



```
ccrtDir% = 0
ccrtStart% = 0
ccrtEnd% = 0
ccrtSecs% = 0
ccrtMics% = 0
```

Insert missing lines here.

```
REM - Start of Main Routine
REM - Set four corners of landscape
```

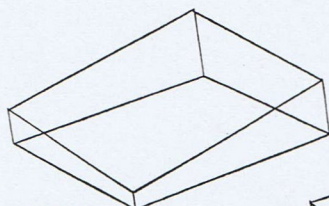


Fig 1

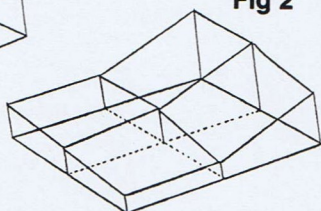


Fig 2

```
IF AvailRam% < NeededRam% THEN
PRINT "Not enough free ram"
GOTO Mcleanup2
END IF
```

```
SCREEN 2,w,h,d,1
t$=" FRACTAL LANDSCAPES"
WINDOW 2,t$,,0,2
PALETTE 0,0,0,0
PALETTE 1,1,1,1
PALETTE 2,.4,.4,.6
FOR c%=16 TO 23
PALETTE c%,1*(c%-16)/15,.8*(c%-16)/15,.6*(c%-16)/15
NEXT c%
FOR c%=24 TO 31
PALETTE c%,.4*(c%-16)/15,1*(c%-16)/15,.2*(c%-16)/15
NEXT c%
```

```
REM - Get Screen structure addresses
GOSUB GetScrAddr
```

```
REM - Init color cycling variables
REM - (Init to 0 for no cycling)
REM - These variables must be initialized
REM - because this version of SaveILBM
REM - always saves a Graphcraft CCRT chunk
```



OOP'S

Here are the missing lines and figures from last month's popular Fractal Landscapes article. The person responsible for their omission has had his dongle removed!

continued

routines from other code if necessary. Byte Bandit subverts this for his own imbecilic purposes; he then allows DOS to continue with a normal boot.

Note that SCA is quite a 'benign' virus in that it ONLY interferes with the machine during re-boot; the rest of the time it sits in stack space doing absolutely nothing. The Byte Bandit virus is much worse than this, in that it interferes with EVERY disk read or write and EVERY vertical blank interrupt. This allows the virus to infect ANY disk inserted, not just a new bootdisk and to delay for a while rather than taking effect immediately.

The vertical blank patch is used to appear to crash the Amiga after a pseudo-random time delay, achieved by the virus counting interrupts until it reaches a sum derived from the current boot count and total number of copies. It then blanks the screen by disabling bitplane DMA. At this point it also tries to set the screen to a deep red by storing into colour register zero at \$DFF180 but fails owing to a small problem - Byte Bandit cannot count. The colour is in fact stored at \$DFF0180, outside the CPU's address space - the 68000 bravely does its best with this nonsense and ends up poking ROM

space. Clever.

Having killed the screen and messed up setting the colour, the virus then settles into watching the keyboard for the ALT-Amiga-SHIFT-Amiga-ALT sequence discussed above; if found it restores DMA and exits.

The virus propagates using its patch to trackdisk BeginIO. It uses this to check for ANY effort to read disk boot blocks, which is done every time a disk is inserted; if found, it copies itself onto the new disk. Like SCA, it does not bother to check if the disk in question was actually bootable to start with - thus non-Workbench disks can become bootable and infected. Unlike SCA, it does not bother to check if the disk is already infected either, so it will keep on re-copying itself onto already infected disks. This accounts for the silly, artificially high, copy count found in block zero.

The nasty way that Byte Bandit messes around with trackdisk 'underneath' the DOS accounts for the way that the virus manages to confuse the system when a boot disk is removed then re-inserted, giving a spurious 'disk corrupt' requestor. This particular effect would appear to be due to incompetence rather than deliberate maliciousness.

Who creates Viruses

The only further remarks to be made about this virus concern the light it throws on the mentality of virus authors. Obviously, Byte Bandit would like to achieve fame as a real cool assembly code hacker. Equally obviously, he lacks the technical ability to do this. What he ought to do is go away for a few years and learn to program; what he does instead is settle for a form of anonymous notoriety as the author of a virus. It would be possible to find this pitiable; a more appropriate emotion is probably contempt. As someone recently neatly put it - 'Why go to all that trouble just to prove to the world that you're a prat?'

There is no easy solution to the problem of viruses - people will continue to write them as long as they think it is clever. One way that YOU might be able to help is to treat these people as they deserve - if anyone boasts of having created a virus, then throw them out of your computer club, ban them from your bulletin board and generally refuse to have anything further to do with them. Perhaps that way people will get the message - viruses and virus authors, just aren't clever.

STUDIO MAGIC

Sunrize Software

Hot on the heels of Futuresound II and AudioMaster comes yet another sampling package for the Amiga – Studio Magic from SunRize. With such a choice of good quality software available for the Amiga musician the obvious dilemma is which one to buy. If you are looking for a program that supports IFF samples, is MIDI compatible and contains a comprehensive range of editing facilities and digital effects then look no further.

Arriving on two disks accompanied by a forty page manual, Studio Magic may be initialised from either the CLI or Workbench although the manual recommends booting from startup to make the most of the available memory. There is a short explanation of the CLI in one of the appendices for those users not familiar with this side of the Amiga's 'personality'.

All input/output is achieved via a single window, full screen display which opens up on booting the program. Good use of shadign makes the most of what are the standard Workbench colours.

The top third of the screen display is a window into which a section of the current sampled sound buffer is represented graphically, and below that are two sliders marking the start and end points of the actual section to be played.

Up to sixteen sounds may be held in memory at one time, the actual number and length of which, is of necessity, memory dependent.

At this stage, you would be well advised to run one of the demos included whilst reading the manual since there are probably more functions available in Studio Magic than any other sampling program for the Amiga I have seen thus far.

Selecting 'Open' from the Projects menu will allow you to load a sample demo from the second disk, whilst selecting MIDI Playback from the Sequencer menu will start it running. Staying with the projects menu for now, Studio Magic supports the standard IFF sampled sound format used by any self respecting piece of Amiga software and will therefore import files saved from Audiomaster, Sonix, Futuresound etc.

Other options provided here include the ability to save in IFF one-shot or 5 octave mode, though you may have to 'jiggle about' a bit with the selected sample first. By this I mean simply that although the IFF standard is well supported by most developers, the actual tuning of samples tends to vary from one software house to another and it may be necessary to 'tune' the sound first. This will be particularly noticeable when importing files from other applications or when 'grabbing' a sound from Audiomaster for instance.

Stereo sound output may be enabled/disabled from the project menu which will

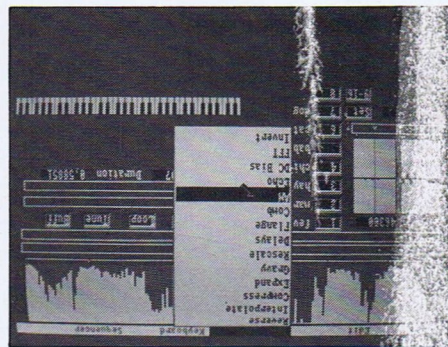
***'Studio Magic supports
the standard IFF
sampled sound format
used by any self
respecting piece of
Amiga software and will
therefore import files
saved from
Audiomaster, Sonix,
Futuresound etc.'***

cause the output to be played from both buffers simultaneously.

The Record function is selected from this menu, a Perfect Sound digitizer is necessary in order to actually record your samples although other samplers may be compatible. There is no mention of this in the manual, however, and so you would be wise to check for compatibility if you own the Futuresound sampler for instance. Two other functions available from this menu are Load MIDI and Save MIDI, more of which later.

The second menu is the Edit menu from which you may 'chop' your samples and move the parts around until you are happy with the results. Cut and paste are of course present here, along with Remove and Insert options which perform the necessary movement of the remain-

ing data so that nothing is overwritten. A very useful option here is Bevel, which applies linear attack and decay ramps to the chosen samples to control fade in and out. Full control over the ramp time is user specified. As you would expect, an Undo function is provided which undoes the last Edit or Tools command.



The Tools menu is where the fun really starts! From this menu you may select any combination of more than a dozen effects which can change the sample in memory in all manner of ways. Reverse simply reverses the currently marked sound which is rarely practical but can be good fun. Interpolation is the process by which the pitch of a sound may be altered by software, which provides the same result as changing the sampling rate but is the only way to mix together samples taken at different rates.

Selecting Compress or Expand will cause the sample duration to be changed – a function that must be used with care since AM distortion may well be a side effect. Gravy(!) is a combination of interpolation and compression which achieves a change in pitch without altering the duration of the selected sample. Selecting Rescale from the Tools menu will prompt for an input between 0 and 127 and will then change the amplitude of the sample, a handy way to even out the volume differences between different samples. In fact, most of the effects have further parameters associated with them which are user definable. Comb filtering is the next option which is quite a tricky

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PROFESSIONAL PAGE

The Amiga dimension has long demanded a professional level desk top publishing package. John Walker, AUI's DTP expert, examines Gold Disk's latest offering to see if it reaches its rumoured brilliance.

It has taken a long time but the Amiga has made it at last. It now has a desk top publishing program that ranks with the best available on other computers. Not only that, Gold Disk's Professional Page, in its 1.1 version, provides facilities for colour printing *unmatched* by any other program – and at not much more than half the cost of its only real rival – Quark Xpress on the Macintosh. Linked to a typesetter or PostScript laser printer Professional Page can produce mechanical and three or four colour separations using 127 colours for its text and structured graphics and up to 4096 colours for bitmap graphics. As a program for creating documents in black and white (and shades of grey) from PostScript printers it has few equals – and none so far on the Amiga. You can also print with dot-matrix or ink-jet machines to produce colour or monochrome copy but since the program cannot use bit-mapped fonts the results are not quite as effective.

Professional Page's power derives from its precise and flexible typographic control, its graphics handling, its use of embedded codes so that you can do all the hard work of formatting text in a word processor and its automatic wrapping of text around graphics.

It runs in two resolutions: interlace of 640 × 400 pixels (actually 640 × 525 on PAL systems), which flickers unless you have a long persistence monitor and non-jittery resolution of 640 × 200 pixels. The latter will distort text and graphics on the screen but it is a matter of a second or so to switch between the two. For most ordinary users it will be best to work in the non-interlaced mode most of the time, switching to interlaced to see how the result will look when printed. Professional Page can be run in its own custom screen or in a re-sizable four colour Workbench window which means that it

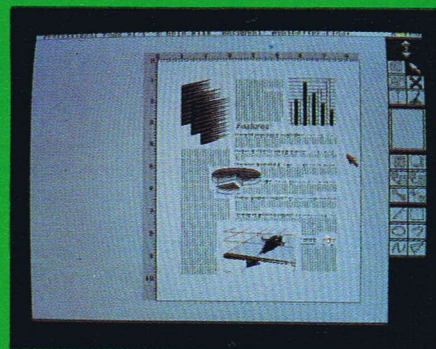
will be compatible with any future monitor capable of showing a whole page at once – and that future monitor capable of showing a whole page at once – and that you can have it and another program visible on screen at the same time.

It does lack some useful functions that can be found in comparable packages on rival computers, such as automatic page and section numbering, index and contents table creation, spell checking and graphic manipulation of text. Most of those, though, I can live without – and some will no doubt turn up in later revisions. But there is one omission that is far more restricting: it will not display more than one page at a time. This is a great drawback in a package aimed at serious and professional users. The unit of design in every publication is, at the very least, two facing pages. Most DTP packages by now recognise the vital importance of the double-page spread and let you see two or more pages in miniature so that you can judge whether the balance is right.

'Line spacing can be defined to an accuracy of one thousandth of a point'

Many professional designers dislike desk top publishing because of its lack of precision when it comes to typesetting. Professional Page's typographic control is extremely fine. The placing of words in a pleasing fashion on the printed page depends upon three things: the spacing of the lines, the amount of space between individual characters and words – known as kerning and tracking – and hyphenation, or the breaking of words correctly over two lines. In these vital areas, Professional Page performs ex-

cellently. Line spacing can be defined to an accuracy of one thousandth of a point (for those not familiar with printing terms, a point is equal to 1/72 of an inch). Characters can be kerned automatically by increments of one hundredth of an Em space, a typographic measure that equals the size of the typeface measured in points. By key presses you can shift a character or characters by larger but still tiny amounts, beginning with two hundredths of an Em space. Text can be hyphenated automatically in three languages: English, French and Spanish. A further refinement is that you can specify the number of characters in a hyphenated word both before and after a hyphen.



Professional Page comes on two unprotected disks together with an indexed manual that goes through the program's functions clearly but somewhat tersely. It describes what the program does but does not touch on how to use it to the best advantage. It will run on any Amiga with two disk drives and 1 megabyte of memory.

The program provides two ways of performing most functions. You can use the Amiga's WIMP interface, with pull-down menus and two toolboxes, one with general and the other with drawing tools.

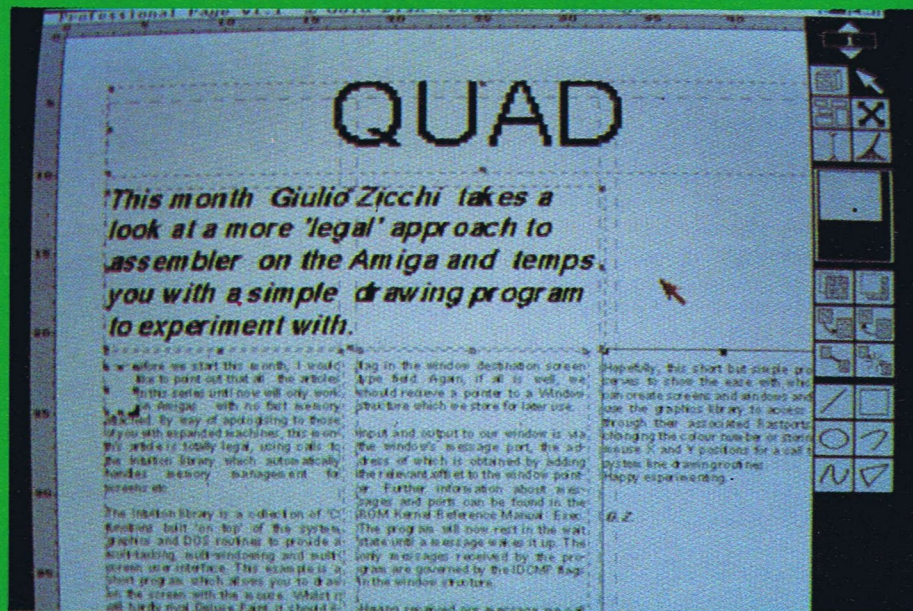
Or keyboard equivalents are provided.

After booting the program your first task is to create a page, defining in a requester box its overall size, page number, margins, the number of columns it is to contain and the width of the gutter between them. To move a page within a document, all you need do is change its number in this box. You can specify the page's measurements in inches, centimetres or picas, which will be shown on rulers at the top and left-hand side of the screen. You always know exactly where you are on the screen by a display of co-ordinates at the top of the page and moving guidelines on the rulers.

A page can be seen at five sizes: 20%, 33%, 50%, 100% and 200%. In the smaller sizes text is 'greeked' and you will usually need 100% display in order to read it. You can create two default pages – one for odd-numbered pages and one for even. With such templates you can devise pages containing common elements such as headings and page numbers. Pages can then be created in batches and you can also specify the point at which a number of new pages are to be inserted in your document. You can put a grid on the page, either as a guide for design purposes or as a 'snap to' grid to which typographic elements will automatically adhere.

'Text can be hyphenated automatically in three languages: English, French and Spanish'

Text and graphics are contained in boxes on the page, using the 'draw and pour' method. That is, draw a box and pour the words or pictures into it – except that it is not always necessary to draw. Using an 'auto-box' feature, you can create a column-sized box by clicking the mouse button within the column while holding down the CTRL (at least, according to the manual. I found it necessary to hold down the ALT key as well). Combined with templates, this can make creating new pages and filling them with text a very fast operation. You can specify the way text is to be justified in a box and link them together so that text will automatically flow from one to another. Any changes to one box will cause the text in all the linked boxes to reformat itself. A box can be moved and re-sized easily either with the mouse or by entering co-ordinates in a requester box. Boxes can be locked, when form and content cannot be changed, or unlocked; they can be set to be transparent, displaying what is in other boxes which they overlap, opaque or impermeable. Impermeable boxes give the program much of its power in altering layouts, since text will automatically wrap round them. Thus you can add an impermeable box containing text or graphics to a full



page of text and it will move aside to make room for it.

To achieve effective automatic wrap-around you need at least two columns of text on a page. With just one single slab of text, the words will not wrap on both sides of an impermeable box. By setting a box's internal margins you can create breathing space between the contents of the box and the surrounding text. You can delete and copy boxes, remove their contents and also specify a default box that will be automatically created each time one is required. An unusual feature is that you can define several boxes as a group so that they can be moved around the page as a unit, without changing their positions relative to each other. You can also copy and delete a group, centre it vertically, horizontally or both, align it with the top, bottom left or right side of one of the boxes, or merge it – something of great benefit when using the program's tools to create a structured drawing.

Structured drawings, unlike bitmap images, are created using co-ordinates so that when they are re-sized, they are not just magnified or made smaller but redrawn at the new size. They print without jagged edges at the full resolution of the printer. All lines, frames and borders are drawn as structured graphics in a variety of styles and weights.

The structured tools provided include freehand drawing, lines in various or customised thicknesses, polygon, rectangle, ellipse and Bezier curve – all of which can be drawn within constrained limits. Using constraint, lines are drawn perpendicular or at 45 degree angles, ellipses become circles and the rectangles form squares. Structured graphics can be drawn anywhere on the page. Each line or curve you draw is automatically supplied with a box as you complete it. Thus your complete drawing will consist of many individual boxes. Being

able to merge the group into one box means that you can then move it easily around the page and re-scale it quickly.

The program claims to have a full featured word processor, which is stretching it a bit. It does not include a spelling-checker, for instance. But you can type text within boxes in any typeface. The editing functions include delete, copy, paste and search and replace. You can select text for editing or typographic changes by box, by highlighting a section, or globally.

Professional Page is compatible with any IFF graphics up to 1024 x 1024 pixels in size in any resolution (Low, Medium, Interlace or High) and in any number of colours, from two to the 4096 of the Amiga's HAM (Hold and Modify) mode. You can also import structured drawings but not text, made with the CAD program Aegis Draw Plus. Structured graphics are automatically scaled to fit whatever size box has been defined for them. Bitmap graphics are added at a

'You can specify the way text is to be justified in a box and link them together so that text will automatically flow from one to another'

standard size of 75 pixels to the inch and shown as half-tones using 16 grey scales. Both types of graphics can be re-scaled and cropped.

Professional Page was originally designed to output only to devices that used the PostScript page description language – that is, either typesetters, such as the Linotronic machines, or the more expensive laser printers. However, it now supports any Preferences printer and comes with the much improved 1.3 printer drivers, including some of 24-pin as well as

PROFESSIONAL PAGE

9-pin dot-matrix printers and for inkjet and colour printers. The only real use you can make of this facility is to proof a page before printing it with a laser printer, since Professional Page will not load bitmapped fonts, such as the Amiga's standard collection. It recognises only PostScript fonts – and the on-screen representations of PostScript fonts do not reproduce well on paper. This is another area where the program needs urgent improvement, especially now that some ink-jet and 24-pin dot-matrix printers give a very high quality hard copy. You can just about produce a reasonable-looking document on a dot-matrix or ink-jet printer if you stick to the Times Roman, Helvetica and the script like Zapf Chancery fonts.

'Impermeable boxes give the program much of its power in altering layouts, since text will automatically wrap round them'

Professional Page will not let you treat its PostScript fonts as graphics – you can re-scale them but you cannot make letters tall and thin or short and fat as other packages allow. At such times it would be useful to be able to use bitmapped fonts. The only way you can do this is to import text saved from a graphics program. The program comes with 19 PostScript fonts, ranging from excellent serif and sans-serif faces to the attractive symbols of Zapf Dingbats. You can have up to 127 typefaces in one document – more than you should ever need – and can use type up to 127 points in size. But the program's text requester box lists only the first 14 fonts you load. A utility, MakeFont, re-scales the PostScript fonts to any point size you like. It is useful but not always essential since Professional Page will re-scale any font as it goes. The fonts be set in bold, outline, italic or underlined styles – but not shadow, strike-through or small capitals which would be welcome additions to any new revision. Neither subscript nor superscript can be set directly. In order to achieve these settings you need to shift the baseline of the text, which can be moved up or down by half-a-point increments.

Text can be imported as ASCII files from any source, with or without carriage returns and from four popular word-processors: WordPerfect (in both its Ami-

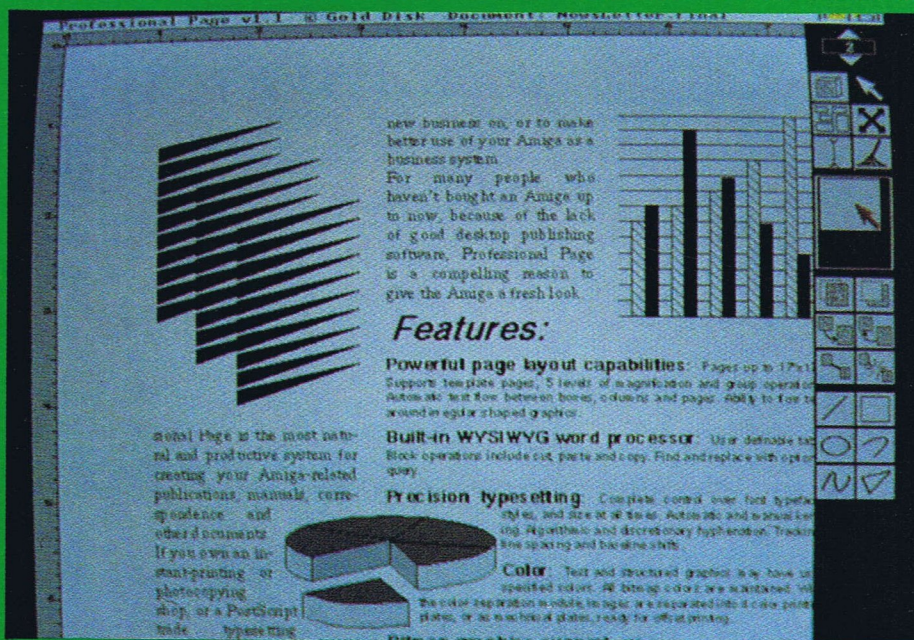
ga and MS-DOS incarnations), Scribble!, Textcraft and Textcraft Plus, which such settings as bold and italic will be preserved.

'The program comes with 19 PostScript fonts, ranging from excellent serif and sans-serif faces to the attractive symbols of Zapf Dingbats'

Professional Page offers an additional method of formatting text – by using simple embedded codes added during its creation on a word processor. These cover all aspects, from the selection of font and style to line-spacing, indents, kerning and colour. You can save blocks

be specified precisely by entering the values themselves. From this information, Professional Color Separator generates either three colour separations or, by adding black, four colour ones, with register marks automatically added outside the page's printing area. In black and white mode, which is faster and less memory intensive, colour bitmap graphics are turned into halftones in sixteen grey scales, screened at the density or angle you specify. Using a typesetter and a 133 dot screen you can achieve magazine-quality reproduction of digitised photographs – though results will be much coarser with a laser or other printers.

Professional Page is an excellent program that turns the Amiga into the cheapest high-quality desk top publishing system available. Its few deficiencies are irritating and need rectifying,



of text as an ASCII text file, when it will also contain all the typographical information translated into embedded codes.

Colour handling takes a little getting used to. On screen up to 16 colours can be displayed at a time, nine as shades of grey and the remaining seven as user-defined colours. A database of up to the remaining seven as user-defined colours. A database of up to 127 colours is kept which can be defined within the program and saved to disk. These colours can be assigned to text or structured graphics.

For colour separations, the colour values of yellow, magenta and cyan can

particularly its refusal to recognise bitmapped fonts or display more than one page on-screen at a time. These faults, however, are outweighed by its many strengths, notably its colour and graphics handling, excellent typographic controls and ease of use. **At its price, there is nothing to touch Professional Page.**

J.W.

Price: £349.95.

A.U.G. Members £299.95.

Contact: Cavendish Commodore Centre, 66 London Road, Leicester LE2 0QD. Tel: (0533) 550993.

PostScript Typefaces supplied: American Type, Avant Garde, Benguiat, Bookman, Courtier, FrizQuad, Garamond, Glypha,

Helvetica Narrow, Lubalin, Machine, New Century, Palatino, Souvenir, Symbol, Times, Zapf Chancery and Zapf Dingbats.

SOFTWARE AND PERIPHERALS LATEST AVAILABILITY LIST

This latest availability list shows the growing quantity of software and peripherals for the AMIGA. It has been compiled by AMIGA User with the valuable collaboration of leading distributors. We are very grateful for the special help we have received from Hobbyte Ltd. Prices include VAT, where necessary and may, of course, be subject to change. Consult your dealer for price confirmation.

Product	Company	Price
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1. Communications

A Talk Plus	Megasoft	£89.95
BBS PC	Micro-Systems Software	£65.00
Dialtext Comms Pack	Dialtext	£29.00
Diga!	Aegis	£57.00
Digital Link	Digital Creations	£65.00
Maxicom	Maxisoft	£49.95
Online!	Micro-Systems Software	£69.95
Ruby-Comm	Y2	£90.00
Ruby-View & VT Emulator	Y2	£172.00
US 4000 Modem	Miracle Technology	£189.00

2. Publishing/Printing

City Desk	Sunrise	£115.00
Howe Publisher	Hi Tec	£24.95
Page Setter	Gold Disk	£115.00
Page Setter Laserscript	Gold Disk	£34.95

Professional Page	£349.95
ProWrite	£75.00
ProWrite 2.0	£85.00
Publisher Plus	£99.95
Shakespeare	£143.75

Gold Disk	£349.95
New Horizons	£75.00
New Horizons	£85.00
Notheast Software	£99.95
Infinity	£143.75

3. Graphics and Video

Analyse! Graphics	Micro-Systems Software	£49.95
Analytical Art	Crystal Rose	£69.95
Animation Effects	Hash Enterprises	£35.00
Animation Stand	Hash Enterprises	£35.00
Animator Apprentice	Hash Enterprises	£199.95
Animator Apprentice Junior	Hash Enterprises	£56.95
Animator Junior Library - Blocks	Hash Enterprises	£56.95
Animator Junior Library - Geometrics	Hash Enterprises	£56.95
Animator Junior Library - Flipper	Hash Enterprises	£56.95
Animator With Images	Hash Enterprises	£56.95
Artpak	Aegis	£103.50
Butcher II	Aegis	£44.95
Calligrapher	Eagle tree Software	£27.00
Deluxe Arts Parts	Interactive Softworks	£55.00
Deluxe Paint	Electronic Arts	£9.95
Deluxe Paint Art & Utility Disk	Electronic Arts	£39.95
	Electronic Arts	£29.95

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Deluxe Paint II	Electronic Arts	\$69.95	Goldrunner	Microdeal	\$24.95
Deluxe Print	Electronic Arts	\$74.95	Grand Slam Tennis	Infinity	\$29.95
Deluxe Productions	Electronic Arts	\$149.00	Grid Start	Anco	\$9.95
Deluxe Video 1.2	Electronic Arts	\$69.00	Guild of Thieves	Rainbird	\$24.95
Digi-paint	NewTek	\$59.95	Gunship	Microprose	\$39.95
Digipic	Precision Software	\$299.00	Hacker	Activision	\$24.95
Digi-Paint	NewTek	\$59.95	Hacker II	Activision	\$24.95
Digi-View 2.0	NewTek	\$170.00	Hardball	US Gold	\$24.95
Express Paint	PAR Software	\$69.95	Hitchhikers Guide To The Galaxy	Infocom	\$29.95
Fantavision	Broderbund Software	\$34.95	Hollywood Hijinks	Infocom	\$29.95
Forms in Flight	Micro Magic	\$60.00	Hollywood Poker	Diamond Games	\$19.95
Grabbit	Discovery	\$29.95	Impact	AudioGenic	\$14.95
Graphics Studio	Prog. Peripherals	\$59.95	Insanity Fight	Microdeal	\$24.95
Images	Aegis	\$27.95	Interceptor	Electronic Arts	\$24.95
Impact	Aegis	\$63.25	Into The Eagles Nest	Pandora	\$19.95
Karafont Textured fonts	Kara	\$59.95	Jewels of Darkness	Rainbird	\$19.95
Page Flipper	Mindware	\$45.00	Joe Blade	Players	\$9.95
Perfect Vision - Video Digitiser	SunRize Industries	\$199.00	Kampfgruppe	SSI	\$29.95
Photon Paint	Microillusions	\$99.95	Karate Kid II	Microdeal	\$24.95
Pixmate	Prog. Peripherals	\$49.95	Karate King	Anco	\$9.99
Prism Plus Paint	Prism	\$59.95	Karting Grand Prix	Anco	\$9.95
Pro Video CGI Titler	JDK	\$179.95	Kikstart II	Mastertronic	\$9.99
Pro Video Font Library	JDK	\$99.95	King of Chicago	Mirror Soft	\$29.95
Sculpt 3D	Byte	\$79.95	Kings Quest	Sierra	\$29.95
The Director	The Right Answers Group	\$47.00	Knight Orc	Rainbird	\$19.95
TV*Show	Zuma Group	\$99.95	Land of Legends	Microillusions	\$49.95
TV*Text	Zuma Group	\$99.95	Las Vegas	Anco	\$9.95
Video Titler	Aegis	\$65.00	Leaderboard	Access	\$24.95
Videoscape 3D	Aegis	\$143.75	Leaserboard Add-on T	Access	\$9.95
Zuma Fonts 1,2,3	Zuma Group	\$26.00	Leather Goddesses Of Phoebus	Infocom	\$34.95

4. Leisure

Aaargh	Melbourne House	\$19.99	Micro League Baseball	Micro League	\$59.95
A Mind Forever Voyaging	Infocom	\$34.95	Mike The Magic Dragon	Anco	\$9.95
Archon	Ariolasoft	\$29.95	Mindshadow	Activision	\$24.95
Arctic fox	Ariolasoft	\$29.95	Moebius	Origin	\$25.95
Arena Sports Simulation	Psygnosis	\$29.95	Moon Mist	Infocom	\$29.95
Arkanoid	Discovery	\$24.95	Mousetrap	Tynesost	\$14.95
Armageddon Man	Martek	\$19.95	Nikademos	SSI	\$24.95
Army Moves	Imagine	\$24.95	Ninja Mission	Mastertronic	\$9.99
Bad Cat	Euro Gold	\$24.95	Ogre	Origin Systems	\$24.95
Backlash	Novagen	\$19.95	One On One	Ariolasoft	\$29.95
Balance Of Power	Mindscape	\$29.95	Pawn	Rainbird	\$24.95
Ball Raider	Diamond	\$19.95	Phalarx	Anco	\$9.95
Bally Hoo	Infocom	\$29.95	Pinball Wizard	Kingsoft	\$19.95
Barbarian	Palace	\$24.95	Pink Panther	Gremlin	\$19.99
Barbarian	Psygnosis	\$24.95	Planetfall	Infocom	\$29.95
Battleships	Elite	\$19.99	Plutos	Tynesoft	\$14.95
Blackjack Academy	Microillusions	\$29.95	Pool	Mastertronic	\$9.99
Black Shadow	CRL	\$19.95	Portal	Activision	\$24.95
Blasterball	Mastertronic	\$9.99	Ports of Call	Aegis	\$24.95
Bone Cruncher	Superior	\$14.95	Power Play	Arcana	\$19.95
Borrowed Time	Activision	\$24.95	Power Struggle	P.S.S.	\$14.99
Brainstorm	King Size	\$9.95	Q Ball	English Software	\$19.95
Bratticus	Psygnosis	\$24.95	Racter	Mindscape	\$36.00
Brian Clough's Football Fortunes	CDS Software Ltd	\$14.99	Revenge II	Mastertronic	\$9.99
Bureaucracy	Infocom	\$34.95	Roadwars	Melbourne House	\$19.99
Casino Roulette	CDS Software Ltd	\$19.95	Roadwar Europa	S.S.I.	\$24.95
Championship American Football	Gamestar	\$24.95	Roadwar 2000	S.S.I.	\$29.00
Championship Baseball	Gamestar	\$24.95	Rockford	Melbourne House	\$19.99
Championship Golf	Gamestar	\$34.95	Rogue	Epyx	\$27.00
Chessmaster 2000	Software Country	\$29.95	Rogue	Mastertronic	\$9.99
Crazy Cars	Titus	\$24.95	Romantic Encounters at the Dome	Microillusions	\$39.95
Cruncher Factory	Anco	\$9.95	S.D.I.	Cinemaware	\$29.95
Dark Castle	Mirrorsoft	\$24.99	Seven Cities Of Gold	Ariolasoft	\$29.95
Deep Space	Psygnosis	\$24.95	Shadowgate	Mindscape	\$24.00
Defender Of The Crown	Cinemaware	\$29.95	Sidewinder	Mastertronic	\$9.99
Deja Vu	Mindscape	\$29.95	Silent Service	Microprose	\$24.95
Delta Patrol	Other Valley	\$24.95	Sinbad	Cinemaware	\$29.95
Demolition	Anco	\$9.95	Sky Fighter	Anco	\$14.95
Destroyer	Epyx	\$24.95	Skyfox	Ariolasoft	\$29.95
Diablo	Unicorn	\$24.95	Slap Fight	Imagine	\$24.95
Dreadnought	Melbourne House	\$19.99	Slaygon	Microdeal	\$19.95
Dr. Fruit	Anco	\$9.95	Space Battle	Anco	\$9.95
Dungeon Construction	Microillusions	\$39.95	Space Quest	Sierra	\$29.95
Earl Weaver Baseball	Electronic Arts	\$29.95	Space Ranger	Mastertronic	\$9.99
Ebonstar	Microillusions	\$39.95	Star League Baseball	Gamestar	\$29.95
ECO	Ocean	\$24.95	Starray	Logotron	\$24.95
Emerald Mine	Anco	\$9.95	Star Wars	Domark	\$19.95
Faery Tale	Microillusions	\$29.95	Stellar Conflict	PAR Software	\$29.95
Ferrari Formula One	Electronic Arts	\$24.95	Strip Poker II+	Anco	\$9.95
Feud	Mastertronic	\$9.99	Super Huey	Cosmi	\$19.95
Final Trip	Anco	\$9.95	Temple Of Apshai Trilogy	Epyx	\$24.95
Fire Power	Microillusions	\$24.95	Terramex	Grand Slam	\$19.95
Flight Path 737	Anco	\$9.95	Terrorpods	Psygnosis	\$24.95
Flight Simulator II	Sublogic	\$49.95	Test Drive	Electronic Arts	\$24.95
Flight Simulator II Scenery Disk 7	Sublogic	\$24.95	Thai Boxing	Anco	\$9.95
Flight Simulator II Scenery Disk 11	Sublogic	\$24.95	The Haley Project	Epyx	\$44.95
Galactic Invasion	Microillusions	\$24.95	The Hunt For Red October	Grand Slam	\$24.95
Garrison	Rainbow Arts	\$24.95	The Pawn	Rainbird	\$24.95
GFL Championship Football	Gamestar	\$24.99	The Surgeon	Amisung	\$49.95
Golden Path	Firebird	\$19.95	Thexder	Sierra	\$14.99

Three Stooges	Mirrorsoft	£24.95
Time Bandit	Microdeal	£24.95
Trinity	Infocom	£34.95
Uninvited	Mindscape	£29.95
Vader	Anco	£9.95
Vampires Empire	Magic Bytes	£19.95
Video Vegas	Baudville	£29.85
Winnie The Pooh	Sierra On-Line	£24.95
Winter Games	Epyx	£29.95
Winter Olympiad	Tynesoft	£19.95
Wishbringer	Infocom	£29.95
Wizball	Ocean	£24.95
Wordplex	PAR Software	£24.95
World Darts	Mastertronic	£9.99
World Games	Activision	£24.95
Xenon	Melbourne House	£19.99
XR35	Anco	£9.95
Zork I	Infocom	£29.95
Zork II	Infocom	£29.95
Zork III	Infocom	£29.95

5. Business

A Filer	Megasoft	£49.95
Acquisition 1.3	Taurus Impex	£249.95
Amiga Accounts	Total Office	£149.95
AmigaCalc	Commodore	£79.95
Analyze!	Micro-Systems Software	£99.95
Analyze! 2.0	Micro-Systems Software	£149.95
B.E.S.T. Business Management	Business Electronics	£399.00
Business Accounts 1	Panmead	£166.75
Business Accounts 2	Panmead	£166.75
DataRetrieve	Abacus	£49.95
dB Man	Verasoft	£149.95
Dynamic Word	Microillusions	£199.95
Excellence!	Micro-Systems Software	£199.95
File II	Softwood	£99.95
Goldspell	Gold	£39.95
Hai Calc	Hai	£59.95
Hippo Word	Hippo	£189.95
Integrated Accounts	Eidersoft	£114.95
KSpread II	Kuma	£79.95
Logistix	Grafox	£95.00
Maxidesk	Maxisoft	£69.95
Maxiplan 500	Oxxi Inc.	£99.95
Maxiplan Plus	Oxxi Inc.	£149.95
Microfiche Filer	Software Vision	£99.95
Office	Interlex	£49.95
Organize!	Micro-Systems Software	£49.95
Outline	Micro-Systems Software	£39.95
Promise	Robtek	£39.95
ProWrite	New Horizons	£75.00
Scribble!	Micro-Systems Software	£49.95
Superbase Personal	Precision	£99.95
Superbase Professional	Precision	£249.95
Talker Word Processor	Finally	£42.15
Textcraft	Commodore	£44.95
TextPro	Abacus	£57.45
The Works	Micro-Systems Software	£149.99
Unicalc	Lattice	£69.95
VIP Professional (1-2-3 Clone)	Ditek	£139.95
Vizawrite (Desktop)	Viza Software	£99.95
Wordperfect 4.1	Sentinel Software	£228.85
Write & File + Spellcheck/Merge	Softwood Company	£99.95

6. Utilities and Languages

64 Emulator	ReadySoft	£69.95
A/C Basic	Absoft	£195.00
A/C Fortran 77	Absoft	£235.00
Airt Language	PDJ	£55.00
APL Programming Language	Micro APL	£264.50
AssemPro	Abacus	£49.95
Aztec C Professional	Manx	£199.00
Aztec C Developers	Manx	£299.00
Aztec C Commercial	Manx	£499.00
Benchmark Modula-2	Oxxi Inc	£199.95
CLlate	Prog. Peripherals	£34.95
Cambridge Lisp	Metacomco	£149.95
dBase III ISAM Package	Lattice	£109.25
Devpac Assembler	Hi Soft	£59.95
DOS-2-DOS	Central Coast Software	£39.95
Explorer Dissassembling Debug Monitor	I.A.N	£49.95
FACC II	ASDG	£34.50
Flipside!	Micro-Systems Software	£19.95
Gizmos	Digital Creations	£49.95
GOMF	Hypertek	£34.95
ISO Pascal	Metacomco	£89.95
Kindwords	The Disc Company	£49.00
KSeka Assembler	Kuma	£49.95

Language Plus Runtime System	True Software	£249.94
Lattice C 3.1 Fast Compiler	Lattice	£165.00
Lattice C 3.1 Professional	Lattice	£165.00
Lattice C Compiler	Lattice	£99.95
Lattice C 4.0 (Standard)	Lattice	£143.75
Lattice C 4.0 (Developers)	Lattice	£270.25
Lint	Graymatter	£110.00
Macro Assembler	Metacomco	£60.82
Make	Lattice	£97.75
Marauder 2	Discovery	£39.95
MCC Toolkit With Multi-user Utility	Metacomco	£39.95
Metascope Debugger	Lattice	£75.00
Modula-2	Modula-2	£99.95
Modula-2 Developers Version	Modula-2	£149.95
MS DOS-C Cross Compiler 3.1	Lattice	£373.75
Multi Forth	Creative Solutions	£179.00
Panel Screen Design	Lattice	£145.00
Power Windows 2	Inovatronics Inc	£59.95
RAM Disc	MicroForge	£24.99
Sam Basic	D.S.	£99.95
Screen Editor	Lattice	£75.00
Shell Enhanced CLI	Metacomco	£49.95
Text Utilities	Lattice	£55.00
True Basic Language	True Software	£69.95
True Basic Runtime System	True Software	£69.95
UBZ Forth	UBZ Software	£85.00
Unix Compatible Make	Lattice	£75.00
USCD Pascal - The Power System	Pecan	£79.95
Zing!	Meridian	£49.95

7. Music

A drum	Bullfrog Productions	£39.95
AudioMaster	Aegis	£44.95
Deluxe Music Construction Set	Electronic Arts	£69.95
Drun Studio	Hi Tec	£39.95
Dynamic Drums	New Wave Software	£69.95
Dynamic Studio	New Wave Software	£129.95
Future Sound	Applied Visions	£170.00
Hot Licks	Infinity	£34.95
Instant Music	Electronic Arts	£29.95
It's Only Rock And Roll	Electronic Arts	£29.95
KCS V1.6 Sequencer	Dr. T	£225.00
Midi Interface	Burocare Systems	£63.25
Music Student I	ACS	£49.95
Music Student II	ACS	£49.95
Music Studio	Activision	£34.95
Music X	Microillusions	£299.95
Perfect Sound	Perfect	£79.95
Pro Sampler Studio	Datel	£69.95
Sonix	Aegis	£57.50
Soundscape MIDI Interface	Mimetics	£59.00
Soundscape Pro MIDI Studio	Mimetics	£184.99
Soundscape Sound Sampler/Digitser	Mimetics	£124.99
Studio Magic	SunRize Industries	£65.00

8. CAD/CAM/Drawing

Aegis Draw	Aegis	£79.95
Aegis Draw Plus	Aegis	£184.95
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Intro Cad	Prog. Peripherals	£59.95
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9. Other

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Portfolio Gold	MDR Interfaces Ltd.	£9.95
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The Planetarium	Microillusions	£69.95

10. Peripherals and Accessories

1 MB Insider expansion (A1000)	Spirit	£373.75
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1.5 MB Expansion card (A500)	
2 MB RAM Expansion	
2 MB RAM Expansion	
32 Bit Turbo Amiga System	
512 KB expansion/Clock (A500)	
68020 14 Mhz CPU Board	
68020/68881 Fast/maths Piggyback Board	
A3 Graphics Tablet	
A4 Graphics Tablet	
Alegria 512K Memory Expansion Board	
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Amiga Dust Cover (A1000)	
Digiclear (captures from video/camera)	
Digi-Droid	
Digipic 32 level frame grabber	
Digi-View HAM 4096 colour digitiser	
Genlock With Software Utilities	
Genlock (A500/A2000)	
H.A.M. 4096 Colour Digitiser	
High Resolution Flicker Free Monitor	
Jitter Rid For 1081 Monitor	
Kickstart Eliminator	
Modem Leads	
Perfect Sound Sampler	
Polaroid Palette And Interface System	
Printlink	
Real Time Clock	
Sidecar (provides IBM compatibility)	
Teletext Adaptor (UK Model)	
Teletext Adaptor (European Model)	
TV Modulator (A500)	
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Conspec	£595.00
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CSA	£975.00
CSA	£1,480.00
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Laser Printer 300 dpi	
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Xerox 4020 Colour Printer	

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Canon LPB8-B1	£3,799.00
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13. Books

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AmigaDOS Manual	Bantam	£24.95
Amiga for Beginners	Abacus	£10.95
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Amiga Programmers Handbook	Syber	£24.95
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11. Printers

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Juki 5520 Colour Printer	Juki	£499.00

STUDIO MAGIC

thing to describe with words. It adds resonance at a selected bandwidth and can be quite effective on some sounds but quite horrible on others. As usual, experimentation is the key to learning what is best for your own needs.

The AM option will add a 'warbling' sound to the sample, the Echo function is again user definable and can add considerably to the depth of a sound. The remaining three options on the Tools menu are DC Bias, FFT and Invert. Invert is pretty much self explanatory but the other two are quite interesting. Distortion of samples can be an accumulative process when applying several effects and removing DC Bias from a sample will 'clean up' the sample, making it less prone to distortion from the other effects. FFT will plot a Fast Fourier Transform of the first 512 samples following the current slider.

A printout may be chosen and I found this a convenient way of studying a sample in order to highlight the peaks of noise which are otherwise harder to pinpoint and eradicate.

The remaining two menu strips are concerned with the MIDI capabilities of Studio Magic. By connecting a suitable

interface to the Amiga it is possible to play the onboard samples from a remote keyboard or, by use of the Sequencer function, the Amiga will play the MIDI device. It should be mentioned at this point that this far from a complete specification, more of a taster for those of you that may just be discovering MIDI. For instance, pitch bend information is not handled which I found to be most inconvenient being a guitar synthensis. Velocity data is accepted however and external sync is catered for if you wish to

'Selecting Record from the Sequencer menu will enable you to play a sequence from your own particular MIDI device and Playback enables you to hear it.'

trigger a sequence from a drum machine or sequencer for instance. Selecting Record from the Sequencer menu will enable you to play a sequence from your

own particular MIDI device and Playback enables you to hear it. However, there are NO editing functions provided for the MIDI data you create, although it is possible to use ED or an external editor to change the resultant text file that the sequencer produces.

If you are a dab hand at turning in perfect performances you are given the opportunity to overdub the resident sequence with another part but be warned that you will not be able to use the Amiga samples to do this.

How does Studio Magic rate alongside the other available packages then? As far as control over samples is concerned, I must admit, that I have not seen anything to match it. If you are looking to have some creative fun with your Amiga and dabble with MIDI at the same time then Studio Magic should be top of your list.

G.Z.

Price: £65.00
Contact: Amiga Centre Scotland,
4 Hart Lane, Edinburgh EH1 3RN,
(031) 557 4242.

ARMAGEDDON MAN

Martech

In Martech's Amiga conversion from their successful 8 bit game, nuclear war and politics are drawn together in a kind of cross between Balance of Power and SDI. Now for a change you can protect the Earth from itself instead of green men from space.

As Supreme Commander your job is to keep the peace between the sixteen alliances throughout the world. These alliances are groups of countries that serve to scale down the amount of governments and forces. Each one has constantly chang-



ing relations with one another which lead to various treaties and wars. Whenever an alliance makes a move concerning another, be it a demand for food or an invasion for instance, you are given the option to support or criticise the action.

Because you are unable to dictate the actions of the alliances, your job as the most highly respected man in the world is to frown on unnecessary aggressors and give a pat on the back to the good guys. The whole affair is played at a control panel with a map of the world taking up most of the screen. A row of computer terminals along the bottom can be called up for information on missile power, wealth, natural resources and the like. Another screen can be called up for distribution of arms and food, for calling a vote of confidence or sending in the WOT squad. The WOT squad deal with the World Organisation of Terrorists, if you can track them down.

The game continues with the alliance going about their business, asking you for guidance and support. From time to time a nuclear war will break out, represented by the exchange of red dots between the forces involved. It hardly puts across

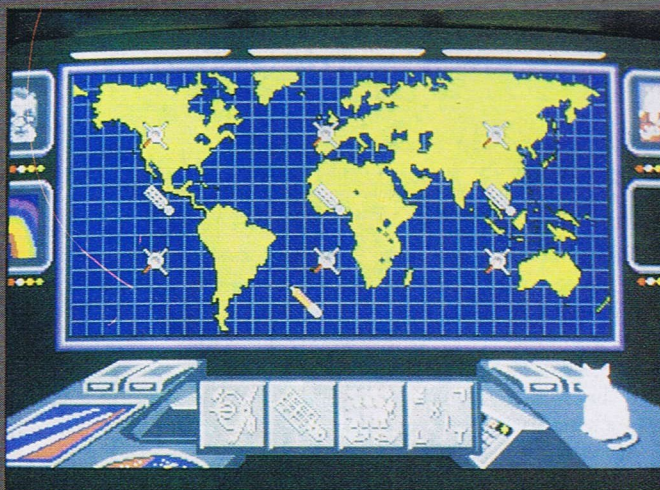
the power and intensity of the real thing. A radio can be used to intercept messages that could contain vital information. These come in as scrambled text that can only be decoded by selecting the right combination of eight filters. Discovering the

"Another screen can be called up for distribution of arms and food, for calling a vote of confidence or sending in the WOT squad."

combination is a case of trial and error. A glossy map and a set of flags comes with the game to help keep track of events.

I have to admit that The Armageddon Man failed to excite me from start to finish. To begin with, going on the lengthy instructions I thought there must be something I had missed. Perusal of the instructions told me otherwise. Nothing interesting ever happens; countries bombard each other with nuclear missiles and what happens? Nothing! Well perhaps relations break down between them, or they appear lower down on the arms chart but so what? I would not pretend world politics is one of my hobbies, but carried out in an imaginative way The Armageddon Man could have made an involving game, as it is, it seems, unfortunately to miss its mark.

T.H.



Graphics: 6
Sound: 4
Playability: 4
Value: 4
Price: £19.95

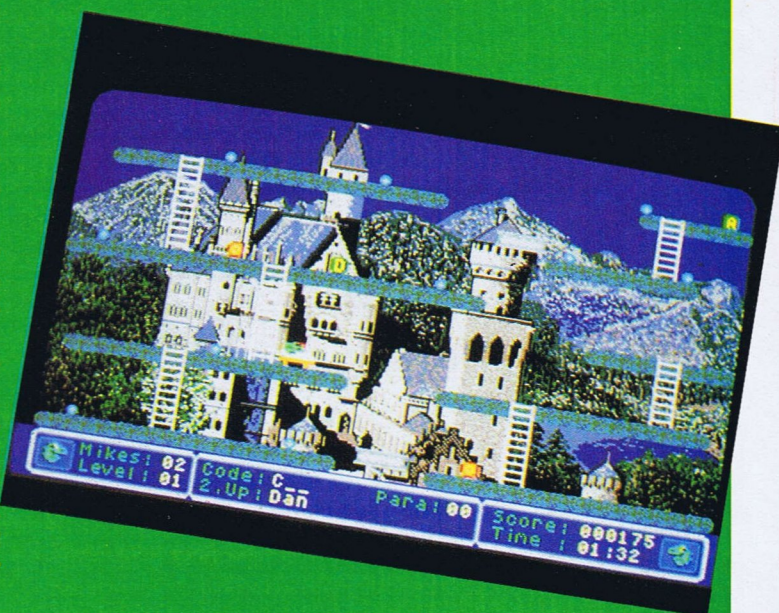
Mike The Magic Dragon *Anco*

Imprisoned by some evil character in a castle far from home, you play the part of Mike The Magic Dragon. If you fail to escape you will become a guinea pig for a series of cruel experiments.

Mike was programmed by Kingsoft and true to their usual style the game starts up with a bit of Jan Hammer-like synth music, accompanied by a colourful if not amazingly well drawn title screen. The music continues through to the game which turns out to be a pretty straightforward platform affair. Three letters are placed around the screen which spell out a word or acronym associated with Amiga computing, for example, CLI, CPU, RAM etc...which is an agreeable creative and appropriate item. Collecting them in the right order in addition to the many jewels will give you the key to the next level.

Ghosts, tomatoes and all those kind of things you expect to find in a platform game patrol the walkways and as always are deadly to the touch. Parachutes can be picked up and used to break a fall. If you hang around too long your captor's pet spider makes an appearance to keep you on your toes. Fast reactions are called for here.

Mike is obviously aimed at the younger end of the gamers range. The backdrops of castles and villages are detailed but tend to confuse the action a little and could do with some more variety. Although



the optional backing music hardly suits the game, the sound effects are certainly lively enough. Apart from the marginally educational word building element there is nothing new or particularly exciting about the game but it is none the worse for that. For many (myself included) this will mean that Mike The Magic Dragon is little more than a pleasant but uninteresting game. On the other hand, the simple gameplay and chubby characters could well be very attractive features to a youngster.

At £9.95, Mike is sensibly priced. It makes very few advances from Manic Miner, released on the Spectrum many years ago but reviewers will find it involving. Sampled sound and improved graphics make it a very professional looking product but as far as the game goes, almost no progress has been made. You could think differently, so if you feel the need for a platform game Mike The Magic Dragon will be worth considering, certainly recommended for first-time, younger Amiga users.

B.V.



Graphics: 7
Sound: 8
Playability: 6
Value: 7
Price: £9.95

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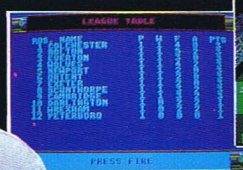
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Screen shots from Atari St system.



Kevin Toms

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